The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. XLV. CHICAGO, ILLINOIS, OCTOBER 14, 1905. No. 16.

Addresses

ARABIAN OPHTHALMOLOGY.*

PROF. J. HIRSCHBERG.

BERLIN, GERMANY.

I came from far abroad, following your very kind invitation, which I consider a mark of international courtesy and true fellowship. It is not my first visit to this flourishing city near the Pacific coast. The wonderful view of the rapid progress of a new culture reminds me of past cultures in the old world, and I propose to you to go back with me a thousand years and to consider the fascinating history of the old Arabian ophthalmology, which I have studied in the last five years, tracing it to its sources. I invite you to a short Arabian hour, which is as attractive as one of the "Arabian Nights;" or, if not, it does depend less on the matter than on the speaker and his want of mastering the English language.

Two questions at first must be entered on: Firstly, which were the sources at the disposal of the Arabs for the formation of their own ophthalmology? Secondly, what is the content of the Arabian work of ophthalmology? We shall learn the first in their initial, and the second in their last, text-books on opthalmology.

The classical "Memorial of Ophthalmology," composed by Ali ben Isa shortly after the year 1000 of our era, mentions as sources for his work the Greeks and his predecessor, Hunain. As we see, Arabs agree with Goethe: There are the Greeks. The Arabs erected their palace of ophthalmology principally from Greek material, but with their own additions and according to their own plan—like this wonderful mosque in Cordoba. The riches of Arabian literature are overwhelming. The text-book of Halifa, about 1260, gives in the preface a list of eighteen works on ophthalmology.

While the Greeks in the thousand years from Hippocrates to Paulos produced only five text-books of our specialty, of which not a single one was written by a specialist, not a single one has come down to us; the Arabs in the shorter flourishing time of five hundred years have created over thirty text-books on ophthalmology; the majority and the most important of them are written by specialists, and fourteen exist to-day and are collected by myself and studied by myself with the help of my learned friends.

The name of oculist among the Arabs has lost the sneer which we find so often in Galenos, but represents a title of honor. Several of these specialists control an experience, of which we can not detect any traces in the remainder of Greek literature.

The oculist bears in the Arabian the name of al-kahhal, from the word kuhl, collyre; but it signifies also the eye operator.

The first learned Arabian work on ophthalmology is composed in ten books by Hunain, an excellent Christian doctor, who lived from 808 to 873 principally in Bagdad and was acquainted with the Greek language, a great translator of Greek works on medical science. I have demonstrated that his work of the ten books on the eye is preserved for us in two medieval Latin translations, that of Demetrius, which had been taken for a work of Galenos, and that of Constantinus Africanus, who declared it his own work.

The fault of this text-book is the want of symmetry. It is welded together from ten different books on various ophthalmologic subjects, which were edited, one after the other, in the lapse of more than thirty years. The theoretical part is too long, the practical too short and torn apart. But, after all, Hunain has planned this pathway for the Arabs; the first step was the most difficult one.

Hunain's influence has lasted till the end of the Arabian era, five hundred years—a time I wish my friends who have published text-books of our science.

The more theoretical and compilatory text-books of the learned doctors, the Greek Arabs, as we may call Hunain, his nephew Hubois and the famous mathematician Tabet ben Qurra of the ninth century, were replaced, a hundred years later, by practical text-books of the oculists. The latter, meanwhile, had stored and put in order their experiences, both in hospital and in private practice.

The classical text-book of ophthalmology was for the Arabs the memorial of oculists of Ali ben Isa, the oculist, written in Bagdad, about nine hundred years ago. Last year, with my friend, Professor Lippert, I published the German edition, with commentaries. This is the oldest text-book of our specialty which we possess to-day, both complete and in the original language. As the author states that he made researches in the works of the old Greeks and made his treatise exhaustive, we may judge that we possess in this work a summary of all which had been known to the Greeks in the department of ophthalmology. But we can expect also something which surpasses the knowledge of the Greeks, because the author says that he had added something from the masters of his time and from his own experience. Beside, he has a systematic arrangement and description which is far superior to that of the Greek compilators, Aetios and Paulos.

Our Ali b. Isa gives to every important and frequent disease—as ophthalmia, trachoma, cataract—the right place and a full chapter, while he shortens less important matter. The succession of the chapters follows the anatomic order. In every chapter comes, firstly, the definition of the disease, then the objective symptoms, then the causes, finally the treatment, the general and the local. In formal respect the book is a model even for us to-day.

The famous Arabian historians, Qifti and Usaibia, tell us that the doctors and oculists work prin-

* Address by special invitation before the Section on Ophthalmology of the American Medical Association at the Portland session, July 11-14, 1905.

cipally and exclusively according to this book. We may call it the Arabian canon of ophthalmology. His reputation persists in the Mahometan world up to our days. We must not forget that the Islamic peoples have continued to live in middle age—they have no modern time. A Drusian oculist in Syria named Hamza, who was hanged in 1860 in Damascus, convicted of willful murder of Christians, was owner of an abstract and of a pariphrase of Ali b. Isa's memorial, the latter written in the year 1845. Owing to the great reputation of the work, we possess eight codes of it. Five of them were at my disposal. From every other Arabian text-book of ophthalmology there are only one or two codes in existence.

The work is divided into three books. The first contains the anatomy, with some remarks on physiology; the second those eye diseases which are perceptible with the senses; the third, the hidden eye diseases. About one hundred and thirty different eye diseases are described, while the Greek, Aetios and Paulos, contain only sixty, and the German Plenk, who wrote the first school book in modern times, one hundred and forty years ago, contains one hundred and twenty eye diseases.

In the work of Ali b. Isa the personality of the author does not appear in the foreground. Notwithstanding, we get the impression of a careful doctor, full of humanity and especially cautious in surgical interferences. He says: "To the cataract operation proceed with caution and circumspection." In none of the Greeks do we find any such remark. He says, also: "When the cataract needle has entered the interior of the eyeball, then address the patient with kind words to quiet his fears." No one of the Greeks has this human and useful rule, but almost all Arabs, who wrote in full on cataract operation.

How great the originality of our author has been is difficult to judge, owing to the missing links between Hunain and Ali b. Isa. But the progress from Hunain to Ali b. Isa is enormous. The book of the latter is not surpassed by anyone in the following 800 years.

Certainly in the Occident during this long time the standard of ophthalmology would have been much higher, and its use for mankind much greater if the early medieval Latin translation of the memorial were better, clearer and so more spread and propagated. But of course a text-book of ophthalmology has no use without a school, oral tradition and practical teaching. Certainly we must pass on to the beginning of the eighteenth century, when the doctrine of dioptrics accomplished by Johannes Kepler began to become more popular among the doctors, and also the strong struggle for the seat of cataract was decided against Galenos and in favor of the truth, before we find better books on our specialty than the memorial of Ali b. Isa. That is the cultural position of his work.

After the classical treatise, I come to the most original book on Arabian ophthalmology, written in Egypt by a native of Mosul about the year 1000 of our era. His name is Ammar; the title of the work "Choice of Eye Diseases." I dare say that before our translation the contents of this work were entirely unknown in the history of medicine.

Ammar was an older coeval of Ali b. Isa. He was a Mahometan, and the most clever eye surgeon of the whole Arabian literature. But he is outshined by Ali b. Isa, because his book seemed too short to the Arabs, who always insist on copiousness and completeness. He has only forty-eight eye diseases; his book contains only 1,800 lines or about 15,000 words. The only code of him is in the Escorial library in Spain. We secured its photographic reproduction and also the code of Parma itself, which contains the Hebrew translation. The so-called Latin translation of Canamusali, always spoken of in the history of our branch, was recognized by comparison to be an awkward forgery of middle age and has nothing to do with the refined work of Ammar. The most peculiar thing in Ammar's book is his six histories of cataract operation. They are clear and impressive, even to-day very attractive, without equal in the Greek literature.

Allow me, gentlemen, to give the true translation of one of these stories:

A marvellous experience. I have operated on the eyes of a lady in a palace, in the green harem of the manor-house of Ibn al Bakri. The cataract was equally in both eyes. Three pupils who studied were present with me. I began with the right eye and operated on it and proceeded in orderly fashion and extracted the needle and bandaged the eye. Then I began the operation on the other eye. As I introduced the needle into the eyeball and was ready to couch the cataract, the lady lost consciousness and was like dead. Immediately I splashed water on her bosom, till she moved, and the spirit re-entered into her, and she became quiet. Now I had the intention to couch the cataract for the second time. But immediately she clutched her hands and got fits, the needle being in the interior of her eye. The students became frightened and ran away. But I took pæonia from my pocket and gave her it to smell. Her spirit returned and she became quiet. Now I had the intention for the third time to couch the cataract and pursued the performance in a hurry and with force. Immediately her pupil dilated, the hole of the iris became as wide as if she suffered from mydriasis; notwithstanding I always held the needle in her eye with one of my hands, the other fastening the eyeball. As her condition became quiet, I finished the operation, withdrew the needle and performed the bandage. On the third day after I visited her to look the eye. Then she told me that from the hour I had left her she suffered hemiplegia. Now, of course, I was convinced that her eye was destroyed after all these accidents and loosened the knot of the bandage—full of desperation; but I found her eyes in the best condition, nearly recovered. Then I praised God the Almighty, because He is capable of all, from Him derives the love and the mercy. In all my surgery I never had a similar case.

Perhaps all the gentlemen present can say the same.

The most important thing in Ammar's work is the radical operation of the soft cataract by suction through the hollow needle constructed by himself.

The origin of this method is really dramatic—just as 730 years later the origin of Daviel's extraction. For catching the real point you must understand, that in the common couching of cataract, as performed by the Arabs after Greek model, the principal danger consisted in re-ascending of the cataract. To avoid this failure, it was considered necessary, without any exception, to lay the patient on his back for seven days after the operation. Once, at Diarbekr in the Iraq, Ammar operated on a man of 30 years for congenital cataract, which could not be couched at all, but ought to be cut into small pieces entirely and to be removed from the pupil. The man recovered fair vision, contrary to expectation. Ammar adds:

He swore that he never rested on his back, not a single day, and he took no precautions at all. Then I constructed the hollow needle, but I did not operate with it on anybody at all before I came to Tiberias. There came a man for operation who told me: Do as you like with me, only I can not lie on my back. Then I operated on him with the hollow needle and extracted the cataract; and he saw immediately, and did not

need to lie, but slept as he liked. Only I bandaged his eye for seven days. With this needle nobody preceded me. I have done many operations with it in Egypt.

So it is perfectly clear what Ammar intended and what he performed. He desired to get a radical operation, after which reascension was impossible—principally for such cases, in which the rest in the recumbent position, so indispensable after the common couching, by no means could be carried out. That, without the slightest doubt, is a real progress, and the first step to Daviel's extraction, the greatest progress in our branch made after the Greeks.

From the book of Ammar we learn the author's character better than from any other Arabian or even European text-book, till far into the modern times. There emerges a strong and self-confident personality. He is conscious of his own merits in the department of eye operations. With confidence he sets out to perform division of symblepharon. He has no fear of bleeding in extirpation of sarcomatous ectropion—as a result of his experience. All remedies he recommends against ophthalmia are approved in his own very long practice. Instead of many doubtful remedies he recommends a single one, which dispenses with all others. To be sure, he makes the greatest demands on the eye surgeon, that is to say, on himself; he ought to be provided with sharp senses, with sure hand, with greatest experience. He needs an experienced assistant and a full collection of well-made instruments.

Ammar is very tender for the happiness of his patients and enthusiastic for success. Shudders and desperation attack him, if the operation does not progress as he liked. If the final result is good, God was the helper and the surgeon. Warm delight fills his soul, as he could restore vision by cataract operation after three years of blindness. Full of bitter resignation he deals with the incurable cancer.

He does not quote a single author, neither Greek nor Arab. Superstitious remedies are not to be found within his book. He also is far from the use of the mud remedies, so widely used both by Greeks and by other Arabs.

Ammar made long travels and practiced and operated in various countries, in Persia, Mesopotamia, Syria, Egypt. A result of his travels is his attempt to create a cataract geography.

So through the study of Ammar's book we get a clear picture of his personality and of his work, while the former accounts gave only a few and poor remarks, not free from important errors.

From the center of the Arabian culture, the Iraq and Egypt, we go to the far east, to Persia. We found a Persian text-book of ophthalmology, never hitherto mentioned in the history of our science. The only copy is in Oxford, from where we got the photographic reproductions. The author is named Abu Ruh, known as Goldhand; the time of composition is the year 1088 of our era; the title of the book is "The Light of the Eyes."

We mention as the first important fact: no traces of old Iranian wisdom are to be found in it; the content seems to be about the same as in the Arabian text-books of that period. The second fact is the separate description of eye operations in the seventh (of the ten books) of this work. The number of eye operations is thirty, the facts and the arrangement are about the same as in the memorial of Ali b. Isa. Concerning cataract, three methods are mentioned: Couching with the needle, couching after previous opening the coats with a lancet, suction. The author declares: the hard cataract is easier for couching; the soft cataract is difficult for couching, but appropriate for suction. Excellent rules are given for after-treatment; principally the diet is very carefully controlled.

Abu Ruh, born in Gurgan, on the borders of the river Oxus, educated in the Persian language, trained by good masters both in general medicine and in the specialty, able to speak Arabian, but fond of his mother tongue, enthusiastic for his profession, but also full of ambition, a skillful surgeon, as his surname "Goldhand" proves, has composed his extensive text-book in the Persian language, overestimating his own work, underestimating that of his predecessors, more by speech, than in fact, because he likes to borrow largely from them and to apologize for it with the common literary customs. The book is full of content, put in order, clear and comprehensible, not without his own additions. The description is wordy, but plastic, because based on experience.

From the far east I beg you to accompany me to the far west of Islam, to Andalus, that means Spain. Andalus was exceedingly admired by the Europeans of the middle age because it was the only part of the world of Islam they gained acquaintance with and found it far superior to their own culture: as well as people who have seen only the Alhambra believe it to be the highest type of Islamic art. But a critical consideration of the remainders of Andalusian ophthalmology shows clearly its inferiority in comparison with the wisdom of the East.

The spirited, but rather more theoretical work of the noble *Abul Mutarrif*, twice minister or wezir at Sevilla, eleventh century, is entirely lost. Of Andalusian works we possess only two anonymous treatises on eye diseases, of mean value, the Latin[1] translation of Alcoati and the very long work of Gafiqi, twelfth century, entitled "The Right Guide in Ophthalmology," remarkable for its wide scope: it furnishes the science and practice of our branch within a wide compass of general knowledge of the diseases of the brain and the whole head—a specialty revived in our days and too in this country.

Each of these Andalusian works is only conserved in a single code of the Escorial, of which I got the photographic reproductions. The codes of this famous library are bound by law to their own residence.

A splendid evening glow finishes the Arabian day of creation. A short time before Arabian science and culture were kicked down by Mongolian horses, two text-books of ophthalmology appeared of such extent and such learning, that we must pass to the beginning of the nineteenth century to find their equals in Europe.

The first is "The Sufficiency in Ophthalmology," composed by Halifa of Aleppo in Syria, about 1260. Its code, which was forwarded me by the Sultan, contains five hundred sixty four pages in folio. The content of the work is very solid and valuable. It is praised by the last Arabian oculist as matchless in literature. Of course, many important passages are borrowed from the memorial of Ali b. Isa, and the character of the composition is rather scholastic. Important are the figures of eye and brain, of instruments, the table of twelve sorts of cataract, the cataract operation. Halifa was eye surgeon. He tells it himself. He had a noble practice, and sketches us a story of a lancet broken in venesection of an emir, where he advised the loadstone for extraction of the broken splinter.

The other work is "The Light of the Eyes," by

1. I have discovered the fifth book of the Arabian original.

Salah ad-din, the oculist, from Hamat in Syria, about 1290. The code of Paris, of which I secured copies, contains 178 leaves in folio. The arrangement is similar to that of Ali b. Isa, but all things are more detailed and scholastically formulated, with an immense amount of quotations. Salah ad-din is a great scientist, the only Arabian oculist who dared in a treatise of ophthalmologic *practice* to explain extensively the subject of optical *theory*. That and his full chapter on cataract is reproduced in the second volume of our Arabian oculists.

It is very characteristic that the two last text-books from the fourteenth century are from Egypt, where the Mongolian hordes never had entered, and the Turks only later. These books are "The Revelation" of Sams ad-din, and "the Support" of Sadii. The last shows one mark of decadence, inasmuch as it is told therein that the practice of suction was entirely lost in that time and in that country, except its mention in older books and the preservation of some samples of the hollow needle. But, notwithstanding, the book is far superior to all European works on ophthalmology in the middle ages and too in the first period of modern time.

The great works of general medicine, by which the Arabs excelled, of Razi, Ibn Serafiun, Tabari, Ali b. al Abba, Ibn Sina, Abulqasim and even of Ibn Zuhr and Ibn Rusd, all of them contain a more or less full treatise of ophthalmology, which too is organically inserted, —quite different from the hand books of general medicine in our days. As a sample of this kind of literature I have edited the ophthalmology of the famous *Ibn Sina* in German translation and explanation.

I will not dwell on the monographs of various subjects of ophthalmology but will finish the explanation of Arabian literature of our specialty with the following point: In the five hundred years from 800 to 1300 of our era there were not less than sixty renowned men of the Arabian world, known to us as oculists or practitioners especially interested in our branch, authors of text-books or monographs on ophthalmology, meanwhile in medieval Europe before the twelfth century none is known as an oculist and in this century only two, one of them coming from Jerusalem, that is to say from the Arabian country, the other trained in Constantinople, this isolated remainder of Hellenistic antiquity. We are told that in Bagdad, in Cairo, in Damascus and in other cities within the reach of Arabs, there were created ocular divisions in general hospitals and even special eye clinics—institutions not to be found in Europe before the end of the eighteenth century.

After this summary sketch of Arabian literature on ophthalmology, I pass over to the single important chapters, in which the Arabs have produced original and special work. Of course, the Arabian anatomy of the eye is entirely derived from the Galenic, but their description is more practical. Dissection of animal eyes is referred to, but only in one author, Alcoati of Toledo.

Interesting for us are the following four points:

Firstly, the codes of Arabian text-books of our branch contain the oldest pictures of the anatomy of the eye.

Secondly, for our anatomic names of parts of the eyeball, as conjunctiva, cornea, uvea, retina, which are of daily use both in speech and writing, the lovers of these names are indebted to the translator of the Arabian works, the Mansuric book of Razi and the canon of Ibn Sina, that is to the famous *Gerard* of Cremona, who did this dull work of translating from the perfect Arabian language into the miserable Latin of middle age, not less than forty years of his life, from 1147 to 1187, in Toledo, the former capital of Arabian Andalus.

Thirdly, the first attempt at a comparative anatomy and physiology of the organ of vision (or a germ of it) is to be found in the last Arabian text-book of our branch, of Sadili. Do not forget that the extensive and classical text-books of Joseph Beer, Mackenzie and Arlt from the first two-thirds of the last century did not tool this brittle matter, which only in our days by the largest handbooks, as *Graefe-Saemisch*, first edition, and the French cyclopedia, is fully dealt with.

Fourthly, to the most important facts, which are transmitted in the anatomic part of the Manzuric book of Razi, belongs the contraction of the pupil following illumination. This fact, that the pupil of the healthy human eye contracts in the bright and dilates in the dark,—a fact, which ought to be detected by the first thinker and observer at the eye of his companion in the first evening twilight, let us say by Adam on the eyes of Eve,—strange to tell, is not to be found in any of the Greek authors, neither of a philosopher nor of a physician. But Razi has the following words: The membrane of iritis contains in its center a hole, which now dilates, now contracts, according to the quantity of light required by the crystalline: it contracts, if the illumination is bright, it dilates in the dark.

This doctrine bore good fruits for the Arabs, principally for the diagnosis of operability of cataract. Ammar has the following general rule: "Look, in the good cataract, there is contraction of pupil in the light, and dilatation of the same in the dark. This doctrine is not lost in the later text-book. In the Greek literature nothing about this valuable symptom is to be detected.

From the anatomy I pass over to the physiology and optics. Here we find a new discovery of the highest importance. *Ibn al-Haitam*, about the year 1000 of our era, tells us in his handbook of optics: *"All vision is performed by refraction.* Nobody of the ancients (that is of the Greeks) has told that." Of course, the full truth was not yet discovered by the Arab, he was not a Kepler; but the Greek error, that vision is performed by rays emanating from the eyeball, this strange theory of subjective emanation, is by the Arabs eclipsed for ever out of science.

We may dwell for a minute on the marvelous history of this author. Born in Basra from noble parents, he ascended to the dignity of wesir in his city. He was fond of science, a good mathematician and well versed in theoretical medicine. Once he declared that if he were in Egypt, he would so control the Nile, that the beneficial water supply were equal every year. Invited by the Sultan Hakim of Egypt, he came and saw at the cataracts of the Nile that he could not stand by his promise. He fled from the scorn of the tyrant and lived in obscurity, only devoted to science. Every year he wrote a copy of three works, of Euclid's elements, of the middle mathematicians and of the Almagest of Ptolemy and brought these codes to the market of Cairo, where immediately they were sold for 180 dinars (that is about $300), a sum sufficent for his life. Strange to say, to-day in the whole Mahometan world, from Morocco to Asia Minor and North India, not a single copy of this work could be sold, except to a European or American purchaser. So high was the Arabian standard of culture formerly; so low it is now, tramped down by the hoofs of Mongolian and Turkish horses. The great mass of the Caucasian race, even those who believe themselves to be educated, have an entirely wrong

judgment, because they mingle the old Arabian with the actual Turks in Asia Minor or with the Berbers in Morocco, both of course having adopted from the Arabs the Islam.

The pathology and therapeutics of ophthalmology is elaborated by the Arabs evidently after the Greek model. But the pupils have surpassed their masters in the systematic arrangement of the matter and in accuracy.

Compare the succession of eye diseases in the compilation of Paulos or Aetios with the text-book of Ali b. Isa and others: the Arabian composition does not differ very much from that of a text-book of our days. But they described several eye diseases, unknown to the Greeks. For instance the sabal, which to-day is called pannus. They described under this name, first, the deep vascularisation of the cornea, which we observe in constitutional keratitis; secondly the superficial vascularisation, which is peculiar to the pannus trachomatosus. They sketched the thick fleshy pannus, the shortening of the conjunctival sac, the origin of pannus from trachoma. They invented the circumcision of conjunctiva for this pannus, which Furnari of Paris, in the year 1862, has introduced as his own invention under the name of tonsura conjunctivalis; but I am sure he has borrowed this method in North Africa, during his long stay, from the native practitioners. Variations on this performance have been observed in Egypt lately and imitated enthusiastically by Professor Schmidt-Rimpler.

The treatment of trachoma, so common and wearying a disease in the Orient, is based by the Arabs on excellent principles. "If the trachoma is chronic and inveterate, there is no help except friction with sugar or with the iron; but as long as it is thin and in the beginning, the cure is by application of sharp collyres." Who listens to that proposition may think that it is taken from one of our text-books; but it is nine hundred years old.

This cataract (ὑπόχυμα of the Greeks) is called by the Arabs ma,' that means water, or al-ma' an-nazil fi 'l ain, the water descending to the eye. Hence the medieval name cataract, which originally means the descending water and which is of daily use among us.

Concerning the seat of cataract, there were discussions. But we learn that the best and oldest clinicians and the oldest oculists put the cataract behind the iris; but that beginning with the year 1000, through Ibn Sina and Ali b. Isa the anterior surface of the pupil was preferred.

Have the Arabs occasionally confounded cataract with other eye diseases? Certainly. But that happened also to some of the modern oculists, even in the nineteenth century. Carron du Villards in Paris confesses that he took a fungus medullaris of the retina in its first period for cataract and that he undertook reclination.[2] I have myself observed as a traveler, twenty years after discovery of the ophthalmoscope, that a famous cataract operator selected for extraction a case of hemorrhage into the vitreous. But the saying, that the Arabs (and likewise before them the Greeks) confounded entirely cataract with hypopyon and operated on hypopyon, speaking of cataract, that is mere tale and fable, refuted and annihilated by all classical texts.

The general surgery of the Arabs is not highly esteemed. But in the special surgery of the eye they achieved great things and were far superior to the Europeans, not only of their time, but also of the following centuries.

The treasure of eye operations, inherited from the Greeks was received, cultivated and increased, principally enriched by a radical operation of cataract. In the Arabian literature for the first time we meet with oculists well educated and experienced, who without the slightest doubt had themselves performed hundreds or thousands of eye operations. We meet with eye surgeons full of boldness, self-confidence and ability, like the great Ammar; we learn the splendid results of the cataract operations, as of Ibn Raqiqa.

The excellent two tables of Halifa contain the figures of not less than thirty-six instruments for eye surgery; that is enough, compared with the last and very complete work on eye surgery, composed in our days by Prof. Czermak and containing seventy-six such figures.

Concerning cataract operation I would like to particularize, if I had the hope of keeping your attention or the courage of taking more of your time, on which I have trespassed so long; so I refer to the remarks I mentioned about this operation and conclude with the statement, that the Arabian literature has also created a kind of oculistic ethics. The system of medical ethics of the Arabs goes back to that of the Greeks and has its roots in the oath of Hippocrates. This old and venerable scripture was translated very early into Arabic by Hunain, the author of the first Arabian ophthalmology. In his life he himself found occasion to refer to that oath. The Caliph Mutawakkil desired to try Hunain and asked from him a mortal poison. Between treasures amassed and torments piled the doctor denied the poison to the tyrant, because it was forbidden, he said, firstly by his religion and secondly by his doctor's oath.

It is very interesting that the Arabian oculists arranged this oath of Hippocrates for their text-books and that they added to the old and general command, not to administer a mortal poison, the new and specialistic match, nor a salve or ointment which destroys vision.

We come to the end. The judgment of August Hirsch, that the Arabs have not contributed to the real progress of ophthalmology, is entirely wrong. He had not studied a single one of all these Arabian text-books. And also, the history of a speciality must be written by a specialist, versed in the matter of the speciality and of the historical sources. I acknowledge that the proficiencies of Arabian ophthalmology in comparison with their large literature are not so very great, but they are remarkable and should not be denied. Besides, during this total darkness in the medieval Europe they lighted and fed the lamps of our science—from the Guadalquivir to the Nile and to the river Oxus. Thirdly they were the only masters of medieval Europe in our branch. So we must state that the name of the Arabs, which is written with indelible characters on the firmament, never will be effaced from the memorial stones of ophthalmologic art and science.

2. "Glioma of the Retina Simulating Hypopyon" is the title of a paper which appeared in the Ophthalmic Review, January, 1903.

Medical Societies.—With proper effort and affiliation of the profession throughout the country there would be practically established in every town a postgraduate medical school. The standing of the profession as such would be raised and a better feeling of fellowship would prevail. With such a united effort those disposed to be treacherous and unprofessional would find it unprofitable and soon fall in line. Young men, old men, all should join hands; there is no excuse for not doing so.—*Kansas City Medical Index-Lancet.*

IMPORTANT SUBJECTS WHICH HAVE OCCUPIED THE ATTENTION OF GYNECOLOGISTS AND OBSTETRICIANS DURING THE PAST YEAR.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON OBSTETRICS AND DISEASES OF WOMEN, AT THE FIFTY-SIXTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, PORTLAND, ORE., JULY 11-14, 1905.

C. L. BONIFIELD, M.D.
CINCINNATI, OHIO.

The rules of the Association demand that the chairman address the Section for a few minutes on the welfare of the Section and on the recent progress in gynecology and obstetrics. I am very willing to perform the first part of this task, for my experience as secretary has given me some decided opinions on how its usefulness can be maintained and increased.

In the first place, the office of secretary should be a comparatively permanent one. The same man should be re-elected not less than four times.

In order that a suitable man be induced to hold this office for five years, his duties should be made as light as possible. Members should assist him by furnishing titles and abstracts promptly when asked for. Papers should be ready for publication when read. Failure to observe this rule causes a vast amount of unnecessary labor and annoyance.

The secretary should be relieved of the necessity of disposing of the bound volume of the transactions, and the trustees should allow him a sufficient salary to pay his traveling expenses and a stenographer.

In the second place, the number of papers to be read should be limited to thirty, and the time limit of fifteen minutes should be strictly enforced in the reading of them. Longer papers may be prepared for publication and read in abstract. For the most part, papers should be read by men of more than local reputation. A moment's thought will convince any one that this is for the greatest good of the greatest number. The attendance almost invariably swells as the time approaches for some celebrity to read and rapidly shrinks when an unknown reader takes the floor. Our system of organization may be likened to the public school system. The county society is the ward school, the state society the high school, and the American Medical Association the university. One can not expect honors in the university until he has worked in the lower grades.

Papers should be read in the order in which they appear on the program. The secretary groups them as best he can; the chairman approves of the arrangement; members of the Association come from other sections at a given hour to hear a paper on some special subject in which they are interested, and are greatly disappointed to find some one else reading on an entirely different subject. Members should not ask for the privilege of reading their papers out of order for trivial reasons.

There has been some discussion as to the scope to which papers in this Section should be limited, some claiming that it should follow the lines adopted by the American Gynecological Society and the American Association of Obstetricians and Gynecologists and deal with all surgical conditions arising between the perineum and the diaphragm, inclusive, while others claim that its work should be limited to obstetrics and pure gynecology, leaving the surgical affections of the appendix, stomach, liver and kidneys to the Section on Surgery and Anatomy. To my mind, there are two serious objections to this last arrangement: First, it is in the problems of surgery in the upper abdominal region that many of the men who belong to this Section are at the present time most interested, and on which they prepare their best papers, and if they can not read them here they will go elsewhere. Second, the surgical section can not give all the good men who wish to read papers on these subjects an opportunity to do so.

It seems to me the best arrangements that could be made would be to change the name of this Section to "Section on Obstetrics, Diseases of Women, and Abdominal Surgery." Ten papers could be allotted to each branch. Papers on kindred subjects would be so grouped on the program as to attract to a session those most competent to discuss the subjects under consideration.

GYNECOLOGY.

Let us now glance at some of the subjects that have most attracted the attention of gynecologists and obstetricians since last we met. Neither science is now making the rapid strides forward that gynecology was making a decade ago. Recent progress has mainly consisted in appraising at their true value procedures previously introduced to the profession.

One of the subjects most discussed during the year is the treatment of retrodisplacements of the uterus. The fact that so many methods are advised is proof positive that no ideal method, which is applicable to all cases, has yet been found. Probably this is expecting too much. Retrodisplacements may be divided broadly into two classes: those requiring treatment and those not requiring it. The majority of the latter class the gynecologist does not see; the condition producing no symptoms, he is not consulted. When symptoms are produced some kind of treatment is required. The only question is whether it shall be by surgical operation or by other methods. In my opinion, many patients are subjected to operation in whom just as good and possibly better results could be obtained by careful, painstaking non-operative treatment. The fact that the uterus is displaced if the malposition be not congenital, or the result of inflammation of the appendages, shows that there is a disproportion between the weight of the uterus and the strength of its supports. To effect a cure this proportion must be restored. The weight of the uterus must be reduced or the supports must be strengthened. As a matter of fact, both are usually attempted. When the condition is treated non-surgically, the weight of the uterus is reduced by hot douches, tampons, rest in bed, free purgation, and by temporarily holding it in approximately its normal position. The supports are strengthened by rest, tonics and suitable exercise.

In surgical treatment the weight of the uterus is reduced by curettage, trachelorrhaphy or amputation of the cervix. The supports are strengthened by adding to their number (ventrosuspension), changing their direction so that they act at greater mechanical advantage (Gilliam's operation), or by restoring the function of some of the supports by taking up the slack in them (shortening the round or sacrouterine ligaments). In what cases can we hope for success without surgery?

The uterus must be free from adhesions and capable of being readily replaced. The appendages must be healthy and also free from adhesions, the posterior cul-de-sac must be fairly deep and the perineum intact so that tampons and pessaries can be used successfully for temporary support. The patient must be willing to submit to treatment for an indefinite length of time and

to remain where the gynecologist can see her as often as necessary. Prolapse of an ovary is not a contraindication for this treatment if the ovary goes up into position with the uterus when the latter is replaced. In some more complicated cases, non-operative treatment may be successful, in the cases described it will be, if skillfully and persistently used.

When it comes to surgical treatment, the wealth of operations advised may be confusing, but one of three will usually answer very well (not including curettage, trachelorrhaphy and perineorrhaphy, which, of course are done along with the one selected if indicated). Alexander's operation does as well as any in the cases which I have described, as those in which a cure can be accomplished without surgery, and if the gynecologist decides to operate in such cases it is the operation to use, on account of its simplicity and freedom from danger.

When there are complications, it is necessary to open the peritoneal cavity to deal with them. A free incision in the median line of the abdomen gives the best opportunity for doing everything that may be necessary; this often includes removal of the appendix. The uterus is freed from adhesions and the tubes and ovaries dealt with as they may require. If their complete removal is necessary or if the woman is past the menopause, ventrosuspension is indicated. This operation should not be done, when any other will answer in child-bearing women, and some method of shortening the round ligaments usually will answer.

I formerly folded the ligaments, covered as they are with peritoneum, on themselves once or twice, employing catgut for sutures. Some of my patients relapsed after six months or a year. I reopened the abdomen and found nothing but peritoneal adhesions to show for my former operation. Now, therefore, I strip the ligaments of peritoneum, fold them once, stitch the folds together with chromicized catgut, push the folded portion through the slit in the peritoneum and stitch it to the ligaments again toward its distal end, then close the peritoneum.

I have been loth to trust shortening of the sacrouterine ligaments alone, because these are little more than folds of peritoneum, and I should expect them to give away again in time.

Cancer of the uterus is another subject that forces itself on the attention of the gynecologist. I hope before this Section meets many more times we will know something of the cause and prevention of this horrible disease and that its treatment will have lapsed into comparative unimportance; at the present time, however, nothing can overshadow this phase of the subject. There are some who think with Baldy that all efforts at radical cure are worse than futile, and others who believe that every case seen early should be subjected to the Rumpf-Reis-Clark operation.

Every few months I meet on the streets a healthy woman whose uterus I removed nearly ten years ago for cancer of the inside of the cervix. This one case, if there were no others, would encourage me to continue to operate for cancer of the uterus.

Just how radical the operation is to be in a given case must depend on the general as well as the local condition of the patient, and the surgeon's skill and speed as an operator.

His best judgment must be used to make the operation not too severe for the patient before him. No matter how thoroughly we may be convinced by deductive reasoning that the most radical procedures are the proper ones, we must not forget that Byrne, Baker and Reamy years ago obtained results by the high amputation of the cervix that have not been improved on by the ever-advancing radicalism of the present time.

It has seemed to me that the cautery may have played an important rôle in the results of these early operators, and for several years, therefore, I have begun the operation in every case of cancer of cervix in which I had hopes of giving permanent relief by destroying the growth with the cautery, and proceeding with an abdominal hysterectomy at once. I have not usually removed retroperitoneal glands, because prolonging the operation in this way seems to add too much to the primary mortality. Great care is always taken to trim away a considerable collar from the upper end of the vagina after the uterus is removed, because cancer of the cervix is prone to recur in the vaginal scar. To do anything less radical than this I regard as doing a palliative operation for relief of symptoms only.

In his presidential address before the American Gynecological Society, Dr. E. C. Dudley proposed an operation for the relief of incontinence of urine, which I believe will prove to be one of the real advances made by gynecology this year.

OBSTETRICS.

The toxemia of pregnancy has attracted the attention of a good many writers on obstetrics during the year. The prevalent belief is that this toxemia may be caused by the derangement of function of the kidneys, liver or thyroid gland. In fatal cases, the pathologic changes have been most frequently found in the liver. This being true, and veratrum viride being one of the most active stimulants of the liver known, besides being a spinal depressant, and so many severe cases having been reported in which this drug has been used successfully, it is difficult to understand why any case should be allowed to terminate fatally without giving this powerful but most tractable drug a trial.

Vaginal Cesarean section has become a well-recognized surgical procedure in cases suitable for its employment. It is always to be remembered that the child must be delivered through the bony pelvis after the cervix has been incised, so the wise operator will assure himself that this is possible before selecting this operation as the proper one.

Cesarean section or the Porro operation is no doubt indicated in certain cases of placenta prævia, but the indications should be those existing in the patient, not in the operator. The fact that the operator is more familiar with surgical than with obstetric procedures, is not a valid indication when skilled obstetricians are within call.

At the St. Paul meeting, our late lamented colleague, Dr. George J. Englemann, read a paper on "The Increasing Sterility of American Women," and during the past year the subject has attracted a good deal of attention from the lay press. It is one of the very greatest importance to the nation, and I know of no work this Section could do that would redound more to its credit than to make some collective investigations that would determine whether the decrease is real or apparent and if real the causes therefor. It would probably be found that it is real; that intentional limitation of the size of the family after marriage is the greatest cause; that late marriages is next in importance; that the higher education of women is a cause only in so much as it delays marriage and renders a woman averse to the cares of maternity.

Back of all these causes would be found the fact that Americans have drifted away from the "simple life." The luxuries of a few decades ago are the necessities of to-day. The struggle for respectable existence becomes more and more intense, and intelligent and educated people hesitate to start in the race of life, children who will be handicapped by poverty.

Original Articles

TUBERCULOSIS OF THE KIDNEY.*

J. G. SHERRILL, A.M., M.D.
LOUISVILLE, KY.

This is a subject worthy of more consideration than has generally been accorded to it, and the condition is one which is likely to be overlooked for long periods when great benefit could result from proper treatment. As several patients have come under my care during the past eighteen months, my attention has been called more directly to the subject.

It has been claimed that renal tuberculosis occurs in 2 per cent. of all patients suffering from this disease, and, while many of these cases are inoperable, there still remains a considerable number in which no other lesion can be located save that in one kidney. Kroenlein[1] uses the terms "solitary" and "combined" tuberculosis of the kidney instead of "primary" and "secondary," and it would seem well to follow his classification, for such distinction will prove of value in the management of a given case. In his 34 cases of nephrectomy only 12 were of the solitary form, and it is reasonable to suppose, he says, that other latent foci have been present, though not detected.

The essential cause, the *Bacillus tuberculosis,* gaining entrance into the circulation through the respiratory or alimentary tracts, with or without the involvement of a lymph gland, is transported to the kidney by the blood, and, becoming localized there, may cause a renal tuberculosis. That the kidney escapes the disease in many cases is well established by Kahlden and others, while the lower urinary tract becomes involved from the presence of bacteria in the urine. In addition to infection from this source, there is undoubted evidence of the disease ascending from the bladder prostate or testis. Again, the possibility of infection of the kidney in the course of a Pott's disease by contiguity must not be overlooked. Morris[2] mentions a case of secondary renal infection from a tuberculous empyema which had perforated the diaphragm. An intestinal or peritoneal tuberculosis might excite disease of the kidney by contact. Such external infection must be rare, as pointed out by Tilden Brown.[3] Hunner[4] gives the proportion of circulatory infection as much larger than the ascending contamination from the bladder. He says: "With the widest margin in favor of primary bladder infection I have classed but 5 of the 35 cases under this heading." Israel gives the proportion as 8 in 30 cases. Hunner[4] points out the probability that ascending infection is more frequent in males. Steinthal (quoted by Bab[5]) has carefully examined 24 cases with reference to this point and states that the bacilli reach the pyramids through the blood stream and there begin their activity. Thence they proceed toward the papilla and finally break into the calices and the pelvis of the kidney, and are carried down by the trickling urine, thus causing disease of the urinary passages. Steinthal states that the fact is often overlooked that renal and testicular tuberculosis may co-exist independently of each other, and that the process in the former is descending while the latter is ascending, and mentions three cases observed by Israel in which the kidney and testicle were simultaneously involved, while the bladder remained perfectly healthy. He also says that it is difficult to explain how the disease situated in the bladder, testicle and prostate proceeds upward, except it be that the disease is so extensive that it extends from cell to cell, and tissue to tissue, or that the ureter possesses a certain amount of "anti-peristaltic" property, a view held by Posner.

If the extension is upward we would expect a continuity of diseased tissue in the first instance. and in the case of reversed peristalsis we would look for some obstruction below to produce such action. In proof of the latter factor being of importance, mention can be made of the experiments of Baumgarten and Albarran. The former failed to produce renal tuberculosis by infecting the prostate and seminal vesicles, while the latter obtained tuberculosis of the kidney by inoculating the ureter and applying a ligature distal to the infection. That obstructions to the urinary passages of man are of importance in causing renal infections no one will deny. The discussion on this point has been carried on for a long time, but the weight of evidence presented seems to justify the conclusion that the majority of cases of tuberculosis of the kidney and ureter result from circulatory infection, that some occur from ascending disease, and that in some instances the kidney and the genital organs are simultaneously attacked. It is an undoubted fact that many conditions favor the growth of the bacteria after they are localized in any part of the economy, and without such predisposing factors tuberculosis would become a very rare disease. The same conditions which favor the development of tuberculosis in any part of the body are equally active here. Traumatism, exposure, infectious diseases, renal stone, floating kidney, and interference with the urinary outflow are all predisposing causes. Gonorrhea, by favoring bladder and genital tuberculosis, is perhaps of importance. That the normal bladder is quite resistant to this disease is shown by the long time which often elapses before it becomes involved after the kidney is attacked.

AGE, SEX AND RACE.

Any age is susceptible to this form of the disease. Morris[2] says that the miliary type is seen most often in the young. Winternitz[6] records a case in a child of 18 months, while Tilden Brown's autopsy records from the Presbyterian Hospital, 1893 to 1896, show the extremes of age to be 2½ months and 64 years. Hunner[4] gives the greatest proportions between 20 and 30 years. In this he agrees with Kroenlein,[1] who comments on the frequency of its occurrence in the flowery period of

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

1. Kroenlein: "Ueber Nierentuberkulose und die Resultate ihrer operativen Behandlung." Archiv. f. klin. Chir,. Berlin, 1904, lxxiii, p. 277.

2. Morris: "Surgical Diseases of the Kidney and Ureter," vol. I, pp. 382 and 478.

3. Brown, F. Tilden: Buck's Reference Handbook of Med. Sc., vol. v, p. 345.

4. Hunner: "Tuberculosis of the Urinary System in Women," Johns Hopkins Hospital Bulletin, vol. xv, No. 154.

5. Bab, M.: "Zur Frage der ascendierenden Nierentuberkulose." Munich, 1904.

6. Winternitz: Ungar. med. Presse. Budapest, 1903, viii, p. 621. "Falle von Nierenextirpation bei Kindern wegen tuberkulöser Pyelonephritis."

life. Kroenlein reports 51 cases; 7 occurred between 17 and 20 years; 23 (45 per cent.) between 21 and 30 years; 14 between 31 and 40 years; 6 between 41 and 50 years, and 1 between 51 and 60 years.

Statistics given by different authors do not agree as to the sex most frequently affected. English writers give men as most often attacked, while Continental observers state that women are most subject to this form of the disease. In Kroenlein's[1] recent report, 38 of 51 cases were females. This discrepancy is probably due to the fact that the writers are giving individual experience and their work is largely confined to one sex.

Hunner[4] states in this connection that all of his 35 cases were in white women, although one-fifth of the patients treated in Johns Hopkins Hospital are colored.

LESIONS.

Both kidneys are affected in two-thirds of the cases when a general tuberculosis coexists, while when the lesion is limited to the kidneys, in the majority of instances, it is unilateral. Israel gives 90 per cent. of cases as unilateral, while Hunner estimates that 92 per cent. of cases in his series were unilateral at period four and a half years after the symptoms began. Kroenlein's cases coming to operation show the right kidney affected 24 times, the left 23 times, and both 4 times. These statements certainly show these patients to be favorable ones for early operation.

The kidney, in the majority of cases, is affected prior to the involvement of the bladder, although the latter organ and the ureter may be expected sooner or later to become involved. Morris[2] claims that it is not difficult generally to tell the mode of infection when examining a tuberculous kidney after its removal. He says:

> When by the blood miliary tubercles are found in the cortical substance the caseous nodules are older and wider about the bases of the pyramids than at the apices, and if they are broken down and have opened into the calices, the open vomicæ are small, even though the parenchyma be entirely destroyed. Moreover, there may be little or no extension of the diseased process into the renal pelvis or ureter. When the disease is of the ascending type the ureter and renal pelvis are indurated, thickened and perhaps ulcerated, with a quantity of cheesy material in their walls or in their lumen. The calices share in these changes, the connective tissue and urinary tubes become invaded from below upward, the vessels become obliterated, minute hemorrhages occur into the tissue, and the breaking down process spreads along the pyramids from apices to bases until large vomicæ are formed in the kidney, which communicate with the renal pelvis by large openings.

PATHOLOGY.

In circulatory infection the bacilli are localized in the neighborhood of the blood vessels, especially in the Malpighian tufts, and there produce the characteristic cell proliferation of tuberculosis. Morris states that the dead bacilli, as well as living organisms, may be the cause of the early cell division. This can only be true to a slight degree, and we may safely claim that all progressive lesions have resulted from the presence of the living organisms. Any dead bacteria present, with good reason, can be considered as dying after their implantation.

The lesion in the kidney may be single or multiple. Tubercle, as seen here, differs in nothing from that tissue wherever found in the body. As these nonvascular nodules increase in size, coagulation necrosis and caseation occur. The process of caseation may progress until the entire secreting structure of the kidney becomes caseous. The process is essentially a slow one and may continue for years before the destruction of the kidney tissue is complete. The presence of a mixed infection is likely to render the tissue destruction more rapid. The *Bacillus coli communis* and the *Streptococcus pyogenes* are the bacteria most frequently present, but in the larger number of cases cultures are free of mixed infection (Hunner). Localized portions of kidney structure may be destroyed or the entire organ may become a cheesy, suppurating mass. The capsule of the organ, naturally resistant, becomes thickened and forms, as it were, the capsule of a cheesy cyst.

Sooner or later, the diseased process extends to the calices, and points of ulceration are seen communicating with the renal pelvis. These openings are minute at first, but soon increase in size. When the ulcerative process destroys a blood vessel, hemorrhage occurs into the renal pelvis and may be observed macroscopically in the urine. Early hemorrhage may result from the congestion produced by the infection, the overdistended vessels permitting the escape of the blood cells into the urinary stream. As the disease progresses, more and more vessels are obliterated until finally very little blood reaches the kidney and the hemorrhage becomes diminished in amount. This seems to agree with Casper's[7] statement that hemorrhage occurs in the first stage of the disease and becomes rarer as the disease progresses.

The flow of bacilli-laden urine through the kidney pelvis and ureter excites a congestion, then an inflammation, and finally a tuberculosis of these structures. The ureter becomes thickened and indurated and finally ulcerated. Microscopic section of its wall may show true tubercular tissue. The bladder apparently resists the infection for long periods of time in many cases, perhaps because of the free escape of urine when it reaches this organ, or on account of the natural resistance of its mucous membrane. It would seem probable that the frequent micturition noted early in this disease is a conservatism on the part of the organism to protect the bladder from the infectious urine. The bladder will show early in the affection, perhaps, nothing more than the pouting of a congested ureteral orifice. There soon follows this a congestion of the bladder on the side of the diseased gland where it is most exposed to the urine from the affected ureter. Still later the entire bladder is inflamed and finally tuberculous deposits and spots of ulceration appear. The other ureter may become inflamed and an ascending infection reach the other kidney which may have escaped up to this time, although such result is not met very frequently.

The ascending form is certainly less frequent than the one just described, and especially so in the female. From a deposit in the epididymis, vas, seminal vesicles, prostate or bladder, the process slowly extends by continuity of tissue to the ureter and finally to the kidney. In this type of the infection, we find the kidney most affected on the side of the greatest amount of bladder inflammation. Ascent of the infection would be facilitated by any obstruction to the urinary outflow, as a stricture of the urethra, an enlarged prostate or a phimosis.

In women, pelvic growths or a pregnant uterus in like manner can aid in the production of an ascending disease. Obstruction to the urinary passages will also favor a descending tuberculosis by retaining in the kid-

7. Casper: "Nierentuberkulose." Deutsche Klinik, Berlin und Vienna, 1904, iv, 3, pp.173-216.

ney bacilli that might otherwise escape harmlessly with free urinary flow. Miliary tuberculosis of the kidney is seen in children who are the subjects of acute miliary tuberculosis. The kidney, usually on each side of the body, is studded with these minute gray tubercles. The infection comes from the circulation and spreads in the same way. The progress of the disease, however, is very rapid, and, according to Morris,[2] it gives no symptoms directly indicative of the renal lesion and does not come within the scope of surgical treatment.

In some cases a form of sclerosis is excited, which is thought by Morris to be due to impaired virulence of the bacteria. The experiments of L. Bernard and M. Salomon[8] show caseating forms resulting from the injection of an ethereal extract of tubercle bacilli, while a chloroform extract gives rise to a sclerotic form.

Hydronephrosis may result from thickening and infiltration of the ureter, and is most likely to follow an ascending infection. Klippel reports a case in which the whole kidney was a polycystic mass and a tuberculous cystic degeneration existed without there being any obstruction of the ureter (Morris). I have seen one case resembling this, and consider the condition as by no means rare. The presence of a mixed infection may result in the destruction of the bacilli and in the formation of an abscess; thus in some instances recovery may occur. In other cases, the abscess invades surrounding structures and there plants a tuberculous process which progresses to a fatal termination. As a result of such rupture on the surface, a sinus may persist for years, or by invading a hollow viscus a fistula may be formed. Such a condition existed in one of my cases, the communication having been established with the posterior wall of the right colon. This case was considered unique until an investigation of the subject showed that several similar cases were on record. Lazarus Riverius and Fernelius[9] have recorded cases of gastrorenal fistula. Morris says that there is some uncertainty in the diagnosis of these cases, but mentions one case, verified by postmortem, in which a fistula from the kidney communicated with the left end of the greater curvature of the stomach. Cases of openings into the duodenum, colon and other portions of the intestine, as well as into the lungs, are on record.

Any of the adjacent structures may become tuberculous as the result of an extension from the kidney, although the resistance of the capsule is likely to prevent such occurrence unless the ureter is obstructed, thus causing tension within the renal capsule.

SYMPTOMS.

The onset of the disease is very insidious in the majority of cases, an exception being the sudden onset of pain in a previously healthy patient, probably due to the obstruction of the rigid ureter by clots of blood or by cheesy material. There is pain in the back, varying from a slight soreness to a severe backache, sometimes radiating down the side to the bladder and not much influenced by motion. Bazy[10] gives three points at which pain may be elicited on pressure: 1. At a point level with the umbilicus and about three fingers' breadth away, para-umbilical or superior ureteral pain; 2, below the costal border, right or left, subcostal; 3, above at the summit of the costomusclar angle, the lumbar. All are usually present, the para-umbilical most often. Painful and frequent urination is often the cause of the complaint, even, as Hunner says, in the absence of bladder involvement. Sometimes the vesical irritation is very distressing. An increased amount of urine may be passed early in the disease, with a diminished quantity later. Morris claims that polyuria (thamuria of Tilden Brown), in a frail patient of tuberculous family, for which no other cause is assignable, should excite suspicion of renal tuberculosis.

Pyuria is present in every case; at least dead cells can be found which are identical with pus cells. Hematuria is often one of the early symptoms of the disease, and in most cases blood can be found at some time in the urine. The blood is usually equally diffused throughout the urine, which is acid in reaction except when cystitis coexists, but at times the hemorrhage is severe and persistent. Cases are recorded in which clots have almost filled the bladder. Albumin is always present when the infundibulum and ureter are involved. Casts are not of necessity present, but were noted in 10 per cent. of the cases in Hunner's report.

The size of the kidney varies, sometimes being normal and again being greatly increased in size. The presence of perirenal inflammation is likely to give the impression of a tumor.

The presence of tubercle bacilli in the urine is an important, but not positive sign of renal disease, as Kahlden has shown their presence in the urine without pathologic change in the urinary tract. Bacilli, with blood and pus in the urine, in the absence of a diseased bladder or prostate, would seem to be pathognomonic. On the other hand, the absence of the organisms in the urine is not a proof that the kidney is sound. Hunner advises repeated daily examinations for bacteria rather than a number of examinations on the same day, and claims that the differential stain should always be used. Tubercle bacilli were found in 15 of 22 of his cases in which a note was made. Casper[9] found them in 80 per cent. of his cases and confirmed the nature of the germ by cultures and, with more extended time, by inoculation of guinea-pigs. Kroenlein[1] found bacilli in 17 of 31 cases. Tilden Brown[3] claims that cultures should be made from the urine separated by ureteral catheter, and also that inoculations are of great value.

Morris does not attach much importance to the tuberculin test, while Hunner considers it of value in cases free of fever. Casper[7] and Schmidt[11] use the tuberculin reaction. This test seems to me to be of value only to establish the fact that the patient has a tuberculous lesion, the location of the focus to be determined by other means.

The general symptoms are those of tuberculosis anywhere—evening rise of temperature, loss of flesh, anorexia, pallor of the skin, night sweats and, perhaps, edema of the feet. Later, hectic symptoms may be present. I have been surprised to note how well preserved my patients have been, and am led to believe that too much stress has been laid on wasting of flesh as a symptom.

DIAGNOSIS.

The diagnosis is to be made by the history, general appearance of the patient, pain less severe than that of stone, and coming on slowly as a rule, dysuria, polyuria,

8. Bernard and Salomon: Recherches sur la tuberculose renale. Jour. de physiologie de pathologie, Paris, 1904, vi, pp. 884-893.
9. Quoted by Morris.
10. Bazy: "Du diagnostic de la pyélite et de la pyélonéphrite simples et tuberculeuses." Presse Médicale, Paris, 1903. "Rein tuberculeux, enlevé par néphrectomie." Bull et mém. Soc. de Paris, 1904., n. s., xxx, p. 367.
11. Schmidt, R: "Fall von initialer lebensgefaehrlicher Hæmaturie infolge der Tuberkulose der Nierenpapillen." Wien. klin. Wochft., 1904, xvii, 27.

hematuria, pyuria in acid urine and the presence of albumin. The demonstration of the bacilli, with the other symptoms mentioned, will be conclusive.

Morris claims that the early diagnosis of renal tuberculosis may save the patient the necessity of a subsequent partial or complete nephrectomy by placing him in a suitable climate and under proper dietetic and hygienic surroundings. While the opinion of this authority carries great weight both on account of his large experience and because of his careful observation of these cases, it must be confessed that the results of such treatment are so uncertain that we are more inclined to operation when we make an early diagnosis of unilateral disease. We are willing to admit that some of these patients live for years, and complete recovery has been known to occur. In any event, an early diagnosis at once gives the attendant an intelligent and clear conception of the case, and he can then judge which is the best plan to follow. The very difficulty of diagnosis should stimulate one to the most careful study of cases presenting symptoms which point to tuberculosis of the kidney. The following are the conditions most likely to be mistaken for this disease, viz.: Renal calculus, pyelonephrosis, renal new growths, tuberculosis of the bladder, cystitis.

Morris states that in the early stages it is difficult, if not impossible, in the absence of the bacilli of tuberculosis, to diagnose tuberculous kidney from renal calculus. He says that the chief reliance should be placed on the constitutional signs of tuberculosis. We are often called on to make a diagnosis before any constitutional evidences of the disease are apparent, and without the history of tuberculosis in the family. The personal history of the patient is of the greatest value in arriving at a correct diagnosis. He will state that for some time he has suffered with a dull pain in one or both loins, with an occasional attack in which the suffering is more acute; that he has had frequent urination and has passed a thick, ropy urine of pale color, or at times it has contained blood. Following the attacks of pain, he may have passed plugs of mucopus or blood clots, but no gravel. On the other hand, a patient suffering from calculus will give a history of passing urine which is high colored and concentrated, causing smarting on micturition. He may have suffered several attacks of renal colic, with the severe pain and profuse sweating incident to this condition, following which small, gritty particles may have been found in the urine. Fever is more likely to be observed in renal tuberculosis than in stone. Hematuria is nearly always present in tuberculous kidney, although it may be so slight that only microscopic examination will detect it, while in stone the hemorrhage is often intermittent and follows an attack of colic. Movement of the patient is more likely to excite both hemorrhage and pain in cases of stone than in renal tuberculosis. Pyuria is constant in tuberculosis unless the ureter is blocked, and it is sometimes intermittent in stone. Casts may be found in each and can not be considered diagnostic. In stone, crystals are usually found in the urine; they are rarely present in tuberculosis of the kidney. The demonstration of the bacilli of tuberculosis in the urine in connection with the symptoms mentioned will make the diagnosis positive, provided disease of the bladder and prostate is excluded. Careful cystoscopy and ureteral catheterization will exclude all possible error.

The question of the advisability of catheterizing the ureter in these cases is one worthy of some consideration. There can be no doubt of its value in making a positive conclusion, but some objections can be offered to catheterization of a healthy ureter in the presence of disease of the other kidney or of the bladder, owing to the danger of infecting the healthy side. That such infection is possible we do not deny, but that it occurs with any degree of frequency we are inclined to doubt. As stated before, the experiments of Albarran seem to show that disease of the ureter only follows infection when an obstruction exists below. Hunner, in speaking of Case 2 of his series, says he thinks it fair to question whether the infection was not carried up to the left ureter by the catheter eight years previously. There is certainly no sufficient proof in support of his conclusion and it would seem more reasonable to attribute the infection to the same source as the one which caused the disease of the right kidney. Hunner claims that by the use of Kelly's speculum with an oblique end sufficient urine may be collected for examination by simply holding it under the ureteral orifice when the patient is in the knee-chest position. In the female, this may be a satisfactory measure, but it will prove more difficult than catheterization in the male and permits of the possibility of error. Albarran advises the use of a catheter in the diseased ureter as large as it will hold, thus obstructing it, and the collection of the urine from the other kidney from the bladder. When the bladder is not extensively diseased, I believe that catheterization of the ureter is justifiable and a means of diagnosis without equal. Moreover, by its use the activity and usefulness of the other kidney can be determined more satisfactorily than by any other means.

From pyelonephrosis the diagnosis is made by its slow course, the absence of high fever, and the evidence of acute sepsis seen in the latter condition, and by the presence of tubercle bacilli. While the urine may be acid in pyelonephrosis, it is usually alkaline, as it is most often a sequel of cystitis.

Tuberculosis of the kidney differs from renal tumors by a much less abundant hematuria, its persistent pyuria, its history, the presence of fever, the presence of other tuberculous lesions, if any, and by the demonstration of the organisms in the urine.

Bladder tuberculosis will not give rise to the lumbar pain or tenderness, and the blood will not be mixed equally through the urine, which will probably give an alkaline reaction. Successful ureteral catheterization will show the absence of bacilli in the urine coming from the kidneys, which would be good presumptive evidence of the absence of renal disease.

In cystitis, the history is quite different from tuberculosis except in the frequency of micturition. The presence of a large amount of pus in an alkaline urine, with great vesical tenesmus and pain, with, perhaps, the history of a local infection, and the absence of lumbar pain or polyuria and of bacilli, will be sufficient for a diagnosis.

When the diagnosis of renal tuberculosis is made, then is to be determined which kidney is affected and the condition of the other organ, both as to disease and efficiency. The gland affected can be determined in some instances from the history of pain, but this has in many reported cases been misleading, especially when both kidneys are involved and an attack is to be made on the one in which the disease has progressed the farthest. The most satisfactory method of meeting all these indications is by ureteral catheterization. The urine segregated in this way will show the presence or absence of bacilli, their abundance if present in each, and by cryoscopy and the urea tests the ability of either gland

to carry on the urinary function can be determined. Wright and Kilmer[12] have proposed a new method of determining the secretory efficiency of the kidney based on the point at which the urine, or blood from which that urine was obtained, will allow complete hemolysis of a standard suspension of red blood corpuscles. They claim by their method to be able to estimate a patient's ability to undergo a surgical operation. Those desiring further study of the method are referred to the original monograph.

PROGNOSIS.

Usually the prognosis is quite unfavorable, except in circumscribed disease of one kidney which is recognized early and treated surgically. The gravity is increased when both kidneys are involved and when it occurs in the course of a general tuberculosis, also when the ureter and bladder are extensively affected and when other tuberculous foci are present in the body. While usually progressing to an unfavorable termination, the course is often very slow and years may elapse before the fatal issue. Recovery without operation is possible, but of infrequent occurrence. E. J. Ill[13] reports several cases of apparent recovery, and Morris says "certain well-marked cases of renal tuberculosis have been temporarily or permanently benefited, and some actually cured, by a change of residence and suitable climate, under a proper hygienic and dietetic régime." Cases are recorded where a patient lived for some years with a diseased kidney after one had been removed. In the absence of disease in other organs, the prognosis is much improved by the early partial or complete removal of a single diseased kidney.

The mortality of nephrectomy was given by Gross in 1885 as 40 per cent., by Vigneron in 1893 as 29.8 per cent. operative mortality and 38.40 per cent. general mortality. Israel placed it at 18 per cent. in 1896, and Tilden Brown[3] in 1898 at 7 per cent. Kroenlein[1] records 34 nephrectomies with 10 deaths and 24 recoveries. Two patients died in the first days after operation, two within two months, two within three months, one in four and one in nine months, and one each in seven and eleven years. His operative mortality was 5.88 per cent. and the general mortality 29.40 per cent.

The number of permanent cures is greater after complete nephrectomy, or nephroureterectomy, than after nephrotomy, or any other plan of treatment. Still, in some cases, nephrotomy or partial nephrectomy would seem to be indicated. Morris reports seven cases of partial nephrectomy, in three of which the patients were later subjected to total removal of the organ, while four were known to be well at considerable periods after operation. He also mentions a case in which one kidney had been previously removed, in which he made a partial one-third resection of the remaining kidney, and the patient was alive four years after the last operation.

He records four nephroureterectomies with three recoveries and one death from hemoptysis and pulmonary tuberculosis five weeks later. Hunner reports thirteen such (complete and partial) operations done by Dr. Howard Kelly and his associates without mortality, a very favorable result.

The duration of the disease before the case comes to operation is not readily determined. Kroenlein[1] says in this connection that one-half of his patients had urinary disturbances for a year; the others dated back two, three, four or more years. One patient gave a positive history on this point, having been seized with sudden, severe pain in the lumbar region after lifting, and was bedridden for seven weeks until he came to operation. In my opinion, when the attention of the profession has been called to this condition, the diagnosis will be made earlier and the mortality will be materially reduced by a prompt and radical attack on the disease.

TREATMENT.

Physicians are firmly convinced that this is essentially a surgical disease when it is recognized while it is solitary and when only one kidney is affected; also that by conservative operation much benefit may result even in the later stages of the affection. In cases in which operation is not accepted, or in which it is deemed unwise, much good may result from the use of such measures as are employed in the treatment of tuberculosis in other parts of the organism, viz., good food, fresh air, suitable climate, creosote, cod liver oil, and some of the various tissue builders. Especially important is the use of warm clothing and the protection of the surface from cold. In addition to these measures, the removal of the primary focus of infection is advisable when feasible.

In the light of recorded literature on this subject, it must be concluded that an early and complete nephrectomy, or nephroureterectomy, will offer most for these sufferers. Kelly has demonstrated also the feasibility of a partial extirpation of the bladder at the same sitting, when a portion of that organ is diseased. This is the ideal procedure for such condition, yet there are so many recorded cases in which the bladder involvement has been relieved after nephrectomy or nephroureterectomy that we are justified in leaving the bladder for a time to see if the symptoms will not subside. The results obtained by Morris in seven cases of partial nephrectomy are sufficient to justify a resort to that operation in well-selected cases. It would appear especially useful when both kidneys are involved, the second being subjected to operation after the wound in the first has healed. Albarran has recommended that incision of the kidney be made prior to its removal, first surrounding it with gauze sponges to protect the adjacent structures. This appears to be a very rational procedure and conducive to the best conservatism.

Nephrotomy is only indicated where the loss of the gland would probably result fatally; it is useful when both kidneys are diseased and when fever is present or when considerable tissue destruction has taken place. The results of this operation have not been flattering, perhaps, in part, because it has been employed late in the affection.

Following any of these operations considerable attention should be paid to the functional activity of the remaining kidney, and the skin called to its assistance during convalescence, by the use of heat to the surface, diaphoretic drugs, and the administration of large quantities of water. After recovery from the operation the same hygienic measures advised for non-operative cases are to be employed.

It is unnecessary to mention the technic of operations on the kidney, except to emphasize some points which are worthy of consideration. The most important of these is the protection of the surrounding tissues from infection, whether the attack is made through the loin or through the abdomen. In some cases of perinephritic infection, protection is impossible, but the convalescence will be short or protracted, according to the successful avoidance of contamination from the diseased kidney. Kelly has graphically described the operation of nephro-

12. Wright, A. E., London Lancet, 1904, I, pp. 921-924.
13. Ill: Annals of Surgery, October, 1903, vol. xxxviii, p. 524.

ureterectomy, and his technic may well be followed. The suggestion that the upper end of the ureter, left after nephrectomy, be cauterized and inverted is offered as a safeguard. In order to prevent an excessive amount of infectious material passing into the bladder during the manipulation of the kidney before removal, a ligature should be placed around the ureter near the kidney pelvis, or a clamp may be similarly placed. Even with this precaution the bladder will contain considerable necrotic tissue, and it should be thoroughly washed before the patient leaves the table. The bladder should receive careful attention for some time and such treatment as its condition demands.

DISCUSSION.

DR. O. C. SMITH, Hartford, Conn., said that it seems to him that because the tubercle bacillus is such an illusive body, it should not be dismissed without extraordinary search. When it has been found, although it may not be pathognomonic, it is the most distinctive symptom. There may be pyuria, hematuria and other symptoms and still not tuberculosis of the kidney. One can not devote too much time in a search for this bacillus. A twenty-four-hour specimen of urine should be collected, and thorough and repeated search made. If not found, the specimen should be centrifugalized and a guinea-pig inoculated. In this way the diagnosis may be brought out. Cryoscopy is a decided aid in these cases, and Kümmel claims that since employing it he has not had a kidney death, i. e., not a death from anuria of the remaining kidney. The procedure requires time and practice. One who is actively engaged in surgical work can not devote the necessary time to cryoscopy and skiagraphy. Dr. Smith has recently advocated before the state society the importance of some one being skilled and equipped in this line of work in ever community. In skiagraphic work physicians in Hartford have been somewhat limited, and have not been able to do the work so successfully as those in larger cities, but lately, with improved apparatus, their results have been more satisfactory. Just before Dr. Smith left for the session a calculus was detected in the kidney of a young woman who had suffered for twelve years. Following the advice given in an article by Dr. Lewis Gregory Cole of New York—who made a positive diagnosis in 167 patients, all of whom were operated on, revealing but two errors in diagnosis—the patient was placed on the back with the tube over the abdomen, and the picture taken very quickly, the patient holding her breath so as to limit the excursions of the diaphragm. If any movement is made the shadow will be enlarged. Operation proved the diagnosis to be correct, a stone the size of a marble being removed from the kidney pelvis.

DR. M. H. RICHARDSON, Boston, said that the first question of practical importance is whether or not both kidneys are affected; a second and still more important one, whether, in case of a proposed operation on one kidney there is another kidney, and if there is another, whether it is capable of adequate elimination. It would be absurd to operate on one kidney if the other one was incapable of doing the work of two. It seems to Dr. Richardson that the treatment of tuberculosis of the kidney, which is not an uncommon disease, is clear if it is certain that one kidney alone is affected. If a focus exists in one kidney only, that kidney should be extirpated; it is only in this way that the disease can be cured. Even after the removal of a tubercular kidney the chances of a permanent cure are not worth much, because of the probable incompleteness of even so extensive an operation as nephrectomy; this has been his experience. When there are sinuses dependent on a tubercular focus the prognosis is also unfavorable. The best treatment is the complete removal of the kidney in the very beginning of the tubercular process rather than when ureter, bladder and the other kidney and ureter have had time to become infected. Dr. Richardson has become convinced that in tuberculosis, as in malignant disease, the best treatment is thorough extirpation at the earliest possible moment. Palliative measures should be resorted to in tuberculosis only when surgical treatment is impracticable.

DR. THOMAS W. HUNTINGTON, San Francisco, declared that the opinion of any individual in the face of voluminous evidence gleaned from the experience of frequent operators, must be taken with some allowance. While he is aware that there is excellent authority for partial operations on the kidney under certain circumstances, his experience accords closely with that of Dr. Richardson. Dr. Huntington has found that extirpation of one kidney at almost any stage in the progress of tubercular disease has given results altogether satisfactory, and he recalled three such patients who are now living valuable lives and so far as he can tell, are absolutely healthy. In the first there was a kidney as large as a fetal head, which was converted into a pus sac. It could not be removed through the ordinary incision without first exhausting its contents. The man at the end of four years shows a gain of nearly thirty pounds and is able to follow his ordinary occupation. In the second case there was a persistent sinus due to ureteral involvement for eighteen months. There was ultimate closure of the sinus and return to health. He does not acknowledge that he has been crippled in the least by the operation. The third case was analogous to the previous ones, and the patient is living after five years perfectly well. In two of the cases tubercle bacilli were clearly demonstrated. In the third no research was made. While a wise conservatism should prevail in our estimate of the value of partial operations, nevertheless it is possible that physicians shall grow more optimistic in that regard in the future in dealing with tuberculous disease of the kidney in its early stages.

DR. CASPER W. SHARPLES, Seattle, Wash., said that hemorrhage of the kidney is often the first symptom and may be very trifling in quantity and amount. The first and only symptom sometimes is the small quantity of blood, although some bladder irritation may be present. When these conditions are present it is a pretty good indication that we should be on the lookout for tuberculous kidney. The hemorrhage may occur with or without irritation of the bladder, but is usually accompanied by painful urination. He mentioned a case in which he operated for tuberculous kidney and in which operation was followed by a profuse hemorrhage eighteen hours later. The blood seemed to come from the stomach. Physical examination of the lungs showed no tubercular deposits in the chest and the sputum showed nothing; the patient simply vomited a large quantity of blood and died.

DR. T. W. NUZUM, Brodhead, Wis., said that he saw Dr. Mayo do an operation recently in which, after removing the kidney, he injected into the ureter twenty drops of 95 per cent. carbolic acid, after which he tied it. Dr. Mayo said that very little would reach the bladder and that it would be harmless. This impressed Dr. Nuzum as being of importance in obviating the necessity of removing the ureter.

DR. JACOB FRANK, Chicago, said that there are certain symptoms which are referred entirely to the bladder and not to the kidney at all, and that this is of importance in the diagnosis. He has had two such cases in which the bladder was apparently normal; cystoscopic examination showed it to be normal except for the presence of pus. It has been said that the ureter is generally enlarged in the ascending type, but his observation has been that it is also enlarged in the descending. Dr. Frank thinks that as a general rule when the kidney is enlarged and the physician knows that there is an infection present, and when the adhesions are extensive and there is danger of opening into the peritoneal cavity, nephrectomy should be done in two sittings. When a patient has recovered from the first operation then only is a complete nephrectomy indicated. In one case he was unfortunate enough to open the pleura and the patient died. Postmortem examination showed that the tuberculosis was no doubt caused by stones which were in both kidneys, and whether the patient died from the opening of the pleura or from the failure of the other kidney to do the work of both kidneys, he does not know. If he had another case in which the kidney was enlarged and the adhesions strong, he would prefer to do the operation in two parts. He operated sixteen years ago on a woman with tuberculosis of the kidney who is still alive. Her bladder symptoms have remained, but they are not so severe as they were when she had her tubercular kidney.

This matter is looked on too lightly. It is said that the bladder symptoms entirely disappear after the removal of the kidney, but Dr. Frank's observations are that the bladder symptoms remain, although they gradually wear away in time in a limited number of cases. The bladder having been accustomed to empty itself so frequently that this symptom does not disappear at once. Dr. Frank thinks that if an early diagnosis can be made before the bladder has acquired this habit of emptying itself frequently, the troublesome cystitis after nephrectomy would be very rare. With the aid of the cystoscope early diagnosis should be easy. In all large cities there are means of catheterizing the ureters and if a tuberculous kidney is found it should be removed at once.

DR. J. G. SHERRILL said that he always tries to determine the condition of the function of the other kidney before the operation. It is urged by many that the catheter should not be passed through an infected bladder into a sound ureter. There are many cases in which much can be learned by passing the catheter into the ureter, and if the bladder has normal mucous membrane it is perfectly safe to pass a catheter into the sound side. If the two urines are examined the presence of bacilli, as well as the ability of the kidney to take care of the function, can readily be determined. Recently Wright and Killmer have advised a new method of determining the efficiency of the kidney, a method of hemolysis. Dr. Sherrill said that he feels sure that injecting carbolic acid into the ureter would be a good proceeding if the ureter is but little if any affected, but if it is extensively diseased it would not be successful. The symptoms referable to the bladder are important, and many of the cases start with dysuria and polyuria. This is a very important point. The dysuria and polyuria are caused by the pus in the urine and should lead us to search for Koch's bacilli, and if found this proves the trouble to be tuberculosis. Bladder tuberculosis may be excluded by cystoscopy. If the urine is acid and contains pus it is important. Dr. Sherrill does not search one specimen many times, but many specimens a few times on succeeding days. Persistent search day after day for a week or more will usually result in finding the bacteria in the urine.

BRAIN INJURIES.*

D. C. PEYTON, M.D.
JEFFERSONVILLE, IND.

To determine whether or not immediate operative interference in brain injuries is indicated is a question of such serious magnitude as to require the most careful consideration of each individual case as it presents itself. Not infrequently, the life of the patient is in the balance, and his fate is determined by our decision one way or the other. The variety of symptoms presented in this class of cases is so great as to prove most perplexing to the minds of the ablest surgeons, many of whom have found at the autopsy that they have been in error in their diagnosis and decision. I feel fully warranted, therefore, in presenting a few facts as I have found them in the operating room and elsewhere, with the hope that the experience herein related may be the means of eliciting such discussion as will throw further light on the class of cases that has caused me great perplexity in trying to determine the advisability of an operation. It is my purpose to discuss this question from a surgical standpoint alone.

There can be no doubt that there is, and always will be, a distinct field for elective brain surgery. It would, indeed, be most unfortunate should there be a tendency to abandon so fertile a field for such brilliant achievements of surgical skill and such good to suffering humanity. Brain surgery has been so firmly established in recent years, however, that there is little danger now of its position being disturbed.

The symptoms which immediately follow injury to the brain are exceedingly important on account of their diagnostic value in determining the extent and nature of the lesion, and serve to aid in treatment and prognosis. It must not be forgotten, however, that the early symptoms may be misleading, and may not, by any means, reveal the exact nature of the injury. It sometimes happens that the most serious intracranial lesions may be found to exist in the presence of symptoms which would suggest only a slight concussion, while, on the other hand, a patient may quickly recover from an injury the early symptoms of which are so aggravated as to give the surgeon serious concern. The first symptom generally observed in serious head injuries is unconsciousness. It is not easy to determine the full significance of this from the symptom alone. In this connection, the most important question to determine is whether the unconsciousness is due to hemorrhage or to concussion or contusion of the brain. It is also of the utmost importance to know the manner in which the injury was received.

The symptom of unconsciousness alone will not reveal whether it is due to hemorrhage or concussion (unless the hemorrhage be from a cerebral artery, as in apoplexy) and as the hemorrhage due to injury is generally meningeal, it does not produce the degree of coma of a cerebral hemorrhage. The manner of approach of the unconsciousness is a most important diagnostic symptom; it is important to know if unconsciousness occurred immediately, after a few minutes or an hour or two, or if there was a return of consciousness after a primary loss, followed shortly by a reappearance of the former state. As a rule, when the patient has fallen from a height, striking on his head, serious lesion at the base of the brain may be expected; or a direct blow may be received on the convex surface of the skull, in such a manner as to produce a lesion in the cortical or subcortical substance, which will cause loss of consciousness. It is important to know the nature and location of the injury. It may be known that a man has received a blow on his head, but when first observed by the surgeon, the external evidences of the injury may have been so completely obliterated, or may not have existed at all, or may be of such a character as not to reveal the location of the blow, and unless there are present pressure symptoms, or other focal evidences, the surgeon may be deceived as to what has really taken place in the cranial cavity. While this state of false security lasts he patiently waits for a return of consciousness, while an increasing hemorrhage goes on within the cranial cavity. An increasing hemorrhage, of course, produces pressure unconsciousness. If the pressure is caused by a depressed fracture, examination will disclose the fact, and if there are marks of violence over the region of the middle meningeal artery, the fact should aid in the diagnosis. If it is determined that the early symptoms of the lesion are caused by a rupture of a meningeal artery, especially of the middle meningeal, the immediate effects may be regarded as most serious, unless relieved by prompt surgical procedure.

The success in a measure will depend on the surgeon's knowledge of cerebral localization. He must be able to determine with accuracy the location of a clot or lesion, or his surgical skill will fail in giving relief to the patient. He must know that on the cortex of the brain there are certain areas, not necessarily coextensive with either lobes or convolutions, these centers are the visual, the speech, the auditory, the sen-

* Read before the Indiana State Medical Association at West Baden French Lick, 1905.

sorimotor, and the centers of sensation, smell and taste. Cerebral localization has to do mainly with two fissures—the fissure of Rolando and the fissure of Sylvius. A knowledge of these areas aids greatly in determining the location of a blood clot, or other brain lesion, and with more exact methods of localization, with more precise craniocerebral topographical methods, and with constantly improving surgical technic, the percentage of successes has been increased. The readiness with which the surgeon recognizes the emergency, and the promptness with which he operates, has contributed no little to this success.

Fracture of the vault is usually the result of direct violence applied over a limited surface. When violence is attended by much momentum, the force is diffused, and a fissure will usually be found to travel from the point of primary inception to some distant region. A quick, sharp blow produces a local fracture, while violence with momentum produces a fissure. It is difficult to formulate a rule by which the direction traveled by these fractures can be determined. Direct violence to the vault from without results in a larger area of damage to the inner table than to the outer; and rarely, the amount of violence may be sufficient to break the inner table without fracture to the outer. The blow may not result in fracture of either table, yet the vibratory change in the shape of the vault results in a rupture of a vessel, with consequent hemorrhage, or it may result in actual contusion of the brain substance and displacement of cerebrospinal fluid and blood.

Again, we may have a transmission of the force to the opposite side of the vault from the point of the receipt of the injury, resulting in fracture by *contrecoup*. Whether this transmission of force is the result of the wave current, or whether it travels by other means to reach the opposite side of the skull, we are certain of the fact that in some way the force of the blow is transmitted to the opposite side, resulting either in fracture or other injuries.

The length of time that may elapse from the receipt of brain injury until active diagnostic symptoms appear, is indefinite, and may vary from a few minutes to several hours or many days.

Borel, as early as 1677, described a class of symptoms or disturbances the result of contusion of the head, which was neither dependent on a fracture of the bone nor a tear of the blood vessels, but was so transitory and of such slight intensity that an actual wounding of the brain could not be its underlying cause. Later when autopsies were more often made on patients dying from injuries of the head, a question arose which has only recently been answered. Following the most dangerous and severe brain symptoms the most careful autopsy failed to reveal the slightest trace of visible change in the brain of the deceased. In other patients, in whom all brain symptoms were absent, and in whom neither the motor nor the sensory functions had suffered, it was found extensive brain lesions existed, frequently a large portion of the frontal lobe was found crushed to a pulp. It is necessary, therefore, that physicians be extremely guarded in their diagnosis and prognosis in these injuries.

That surgical interference is imperative in these cases there can be no doubt. In a condition of hemorrhage of a typical character there are three consecutive stages that must be recognized, namely: First, a partial or complete unconsciousness, the result of stunning from a blow; second, the recovery from this, and later a secondary unconsciousness coming on either slowly or with marked rapidity, as the result of pressure from a slowly accumulating hemorrhage; third, unconsciousness occurring as the result of an overwhelming hemorrhage, forming a veritable wet blanket over the brain. It is well to remember, however, that in the case of a rupture of a large branch, and especially the main branch of the middle cerebral, there will be such a rapid outpouring of blood as totally to obliterate the period of consciousness between the two stages.

Hemorrhage may be extradural or intradural, following a blow on the skull, with or without fracture, fissured or depressed. The frequency of hemorrhage in intracranial injury is quite marked. Phelps holds that in from 50 to 60 per cent. of the cases this factor occurs in sufficient quantity and such relation as materially to influence the final result, and to serve as a determinate factor of the symptoms; and that in about one-third of all cases it was either the direct or the sole cause of a fatal ending.

Operative interference is indicated when there are symptoms of compression, whether from hemorrhage, depressed bone, or the presence of a foreign body. The greatest mortality is in injuries caused by falls from a height, striking on the head, such as being thrown from a horse, or falling from a building or scaffold. Gunshot wounds of the brain are almost equally fatal. In determining the question as to whether or not operative interference is indicated, it is necessary that the manner of receipt of the injury, the character of symptoms following, and the rapidity with which certain symptoms come on following the accident, be taken into consideration. If called on to assume the responsibility of a patient presenting such evidences of serious brain lesion as paralysis in some form, clonic convulsions of one side or the other, inequality of the pupils, with possibly unconsciousness or profound coma, and probably with Cheyne-Stokes or stertorous respiration, there is little doubt that the surgeon will readily recognize that surgical interference is imperatively demanded: I desire to emphasize the fact that, in my judgment, the danger to the patient of an exploratory opening with an observance of the highest degree of aseptic technic, is infinitely less than the unreasonable delay that is frequently permitted while waiting for definite diagnostic symptoms. It is in that class of borderline cases presenting only a few of the foregoing symptoms, and maybe in an exceedingly mild form, or in the cases in which it is necessary to depend for diagnosis largely or wholly on the manner of receipt of the injury, together with its character and location, that we are liable to be misled by an apparently unimportant array of symptoms, and to fall short of our duty as surgeons by failing to recognize at the earliest possible time the unusual symptoms pointing to a lesion at some point in the brain that could and should be relieved by operative interference. I would urge, therefore, the importance of the physician observing in detail each case of brain injury from the time of his first visit until such a time as he can reasonably assure himself that no injury has occurred within the cranial walls. It is not intended by any means to sacrifice conservatism, but rather to increase its usefulness by adding to it that degree of conservative boldness born of a knowledge of imperative duty, enhanced by a knowledge of anatomy of the brain, together with the significance of a class of symptoms, and the ability to apply the highest degree of surgical technic for the relief of this class of patients.

In this connection, the following report of two cases will be of interest in illustrating in a manner some of the statements contained herein:

CASE 1.—Three years ago I was called to attend a man aged 35, of remarkably strong physique, who, while in a fight, had been shot with a 38-caliber ball from a pistol. The bullet entered the skull from behind and well up toward the top in about the median line.

Examination.—It was found that the skull had been literally crushed for a space of an inch or an inch and a half in diameter. The dura was badly lacerated, and many fragments of bone were found approximately two inches down in the brain substance; there was also extensive laceration of the brain tissue.

Treatment.—These fragments of bone were removed, and the wound in the brain carefully but thoroughly irrigated with a normal saline solution, quite a quantity of the brain matter escaping. The dura was sutured as well as possible, the external wound closed and dressed and the patient put to bed.

Result.—The man made an uninterrupted recovery, and at the end of ten days was able to sit up, and in two weeks left the hospital apparently all right. The only symptom that showed itself following the operation was on the second day, when the man called attention to the fact that he felt something under his back and asked if it could be removed. On investigation it was found that he was lying on his left hand, of which he was totally unconscious so far as the hand was concerned, showing conclusively that the arm center in the brain had been slightly interfered with. This symptom lasted for only a few days, when it cleared up. The man was a coal-shoveler on the fleets, and the last heard of him, about a year ago, he was perfectly well and had suffered no inconvenience from his injury.

CASE 2.—A man, while engaged in repairing an electric light wire one day last winter, fell from a scaffold to the frozen ground, a distance of probably twenty-five feet, striking on the left side of his head. The only external evidence of an injury was a slight contusion of the scalp on the left side.

Examination.—When seen a few minutes after the injury he presented the following symptoms: Total loss of consciousness, inequality of pupils, the left being more dilated than the right, with slight conjugate deviation of the eyes toward the left; ecchymosis around the left eye, with considerable protrusion of the left eyeball; irregular pulse, and a slight tendency to Cheyne-Stokes respiration. There was a fracture of the left arm and left leg, which interfered materially with diagnosing any paralysis which might have followed the injury. Later it was observed that there was variation in the pupils, the left pupil contracting somewhat, with a slight dilatation of the right. Within twenty or thirty minutes following the accident he showed marked clonic contractions, or convulsions of both the arm and leg on the right side. The knee-jerk was slightly exaggerated on the right, while on the left the result was negative on account of the fracture of the thigh. It was difficult to test his sensory reflexes on account of his profound unconsciousness.

Treatment.—Injury of the left side, probably extensive hemorrhage from the left meningeal artery, was diagnosed, and it was decided to trephine. There appeared to be no injury to the vault of the skull whatever, both tables being intact. The opening was made a little anterior to the junction of the temporal, parietal and frontal bones on the left side. There was no extradural hemorrhage, although the dura appeared very tense. On opening the dura it was found that there was some extravasation of blood under the membrane which had followed the convolutions of the brain at this point. Simultaneously with the opening of the dura and the relief of the tension the patient's pulse and respiration became very much improved under the anesthetic. The wound was irrigated with a normal saline solution, the dura sutured, and the external wound closed. The improvement in the patient's condition continued, and was even more marked for twelve or fifteen hours following the operation, when he developed what appeared to be traumatic pneumonia, from which he quickly died.

Autopsy.—The autopsy showed some laceration of the brain tissue, with rather extensive extravasation of blood at several points, and with a stellate fracture at the base, beginning at the junction of the anterior wing of the sphenoid and frontal bones, running backward through the middle fossa to the petrous portion of the temporal bone, and another line of fracture beginning at the same point and running forward through the floor of the orbit, and a third fracture line running through the cribriform plate of the ethmoid and crossing to the opposite side.

I have purposely refrained from taking up at length the various means or instruments suggested for gaining an entrance into the brain. It is believed that each of these various instruments has its advantages in certain cases and its disadvantages in others. This question has been so fully and ably discussed by such men as Keen and Mills and others that it seems unnecessary to consider it except in a general way. In brain tumors or in other diseased conditions, I am partial to the chisel and mallet. In brain injuries with laceration and probably wounded vessels with consequent hemorrhage, the trephine and the rongeur are to be preferred, lest by the use of the chisel and mallet a further injury to the already contused or lacerated brain is had, or an already dangerous hemorrhage from a wounded vessel is increased. These, however, are questions to be determined by the operator when he assumes the management of each individual case as it presents itself.

FURTHER REMARKS ON THE MODE OF INFECTION IN UNCINARIASIS.*

CLAUDE A. SMITH, M.D.

Pathologist to Grady Hospital, Baptist Tabernacle Infirmary, Professor of Pathology and Bacteriology, Southern Dental College; Demonstrator of Pathology, Atlanta College of Physicians and Surgeons; Secretary Anatomical Board of Georgia.

ATLANTA, GA.

At the session of this Association at Atlantic City last year I presented a report of an experiment on a human being to determine whether the larvæ of the uncinaria would penetrate the skin. At that time I reported that, after placing soil containing larvæ on the skin of an individual, an eruption had followed, and that, after a period of seven weeks, the eggs of the uncinaria were found in the feces.

In this paper I report a second experiment, similar to the first, in which the soil containing the larvæ was placed on the wrist of an individual who had shortly before been discharged from the hospital after an operation for hernia, and the eggs of the uncinaria were found in the feces during the sixth week afterward.

In the first case, it was not feasible to obtain photographs of the various stages of the eruption produced on the skin by the larvæ, but in this second case I was able to do this, and present them in the report which follows:

METHOD OF PROCEDURE.

Preliminary Arrangements.—After making arrangements with the patient regarding the experiment, a specimen of feces was obtained containing an abundance of the eggs of the uncinaria. Some soil was next obtained and baked for an hour so as to eliminate any other organism. After cooling this soil, the feces containing the eggs were then mixed with it until the odor of the feces had about disappeared, sufficient water being added to render the mass slightly damp. This mix-

* Read at the joint meeting of the Section on Practice of Medicine and the Section on Pathology and Physiology at the Fifty-sixth Annual Session, July, 1905.

ture was then placed in Petri dishes and kept at the room temperature.

At the end of twenty-four hours an examination of the soil showed that the eggs had all hatched out, as no eggs could be found, but there was an abundance of the young larvæ.

Application to Skin.—An important point to be determined was the age at which the larvæ would penetrate the skin. It was decided, therefore, to place the larvæ on the skin every day from the time they were

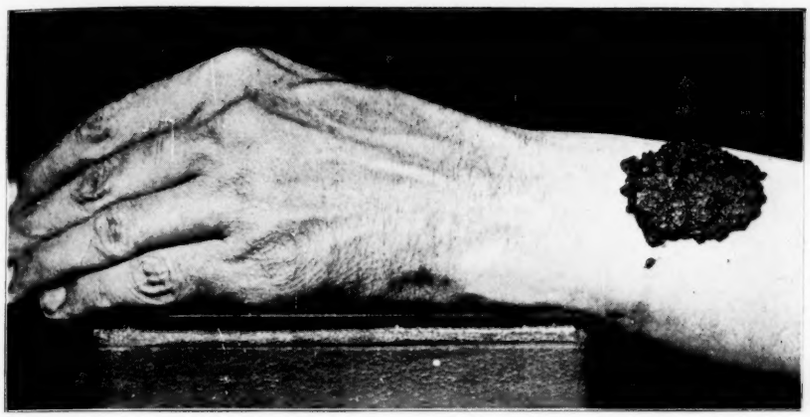

Fig. 1.—The soil containing the larvæ as it appeared on the wrist, the tendons and veins of the hand showing distinctly.

twenty-four hours old until some result was obtained. Accordingly when these larvæ were twenty-four hours old some of the soil was placed on the wrist, wrapped with a plain gauze bandage and allowed to remain for one hour. At the end of this time the soil was removed and the wrist examined. No effect was apparent and the patient said he had experienced no sensation during the period.

This procedure was repeated when the larvæ were forty-eight hours old, and again on the third, fourth and fifth days. No result whatever was obtained, and this was rather surprising, as the results in the previous experiment were obtained when the larvæ were four days old.

On the sixth and seventh days the patient failed to appear, but he reappeared on the eighth day, and the soil was again bound on the wrist and allowed to remain for one hour.

Within five minutes after the soil was placed on the wrist the patient complained of a sharp, stinging sensation in the area covered by the soil, which increased and persisted during the time the soil was allowed to remain on the wrist. At no time was the wrist of the patient given any treatment whatever before applying the soil. The soil was simply placed directly on the skin, as shown in Figure 1. (About the third day a simple ointment was placed on the eruption to relieve the anxiety of the patient.)

Treatment of Wrist.—After remaining on the wrist for one hour the soil was removed, and on inspection the entire area was found to be decidedly reddened. The soil was thoroughly removed and the wrist was then carefully wrapped with a number of layers of plain gauze bandage, and the patient was instructed not to remove this and to return the following day.

On coming back the next day, the patient said that the stinging sensation had gradually subsided the day previous, but that during the night the intense itching of the area was so annoying as to interfere with his sleep. On removing the bandage from the wrist the redness over the area was increased, the area was slightly elevated, and the entire dorsum of the wrist was swollen. The patient was instructed to restrain any desire to scratch the area, but to be sure that the area would not be damaged by the finger nails of the patient while asleep the layers of gauze bandage were replaced.

Constitutional and Local Symptoms.—On returning the day following, the patient stated that he had slept scarcely any at all the night before on account of the excruciating itching, and that he had rolled and tossed all night.

Removal of the bandage showed the wrist greatly swollen, the swelling extending downward over the back of the hand and upward a short distance on the forearm. The area which had been covered by the soil was intensely reddened, and vesicles covered the entire area. On direct pressure, however, the patient said that there was very little tenderness. The lack of tenderness was a marked feature throughout the course of the eruption. This was true in the first case. The condition of the wrist at this time is shown in Figure 2.

On the third day of the eruption, the swelling had extended down over the first phalanx of the fingers and upward to about half way to the elbow. The swelling reached its height at this time. The vesicle had become confluent, forming large blebs, and the redness was more intense. The itching was still severe, but the patient said he had rested better than on the two previous nights. There was some redness up the inner side of the forearm, but no involvement of the axillary glands.

Fig. 2.—Showing swelling of wrist, obliterating veins and tendons of hand and vesicle formation.

On the fourth day, some of the vesicles had ruptured, moistening the bandage, and the swelling had begun to recede. The patient had rested much better than previously. The itching had also decreased in severity.

On the fifth day, many of the vesicles had ruptured, and a crust had formed over a part of the area. The swelling had greatly decreased, the veins and tendons showing well through the skin. Previously they had been obliterated by the swelling. The patient now said

he was feeling all right again. Figure 3 shows the hand at this time.

On the sixth day, almost the entire area was covered by the crust which had formed, only a few vesicles remaining. Only a trace of the swelling remained about the wrist, and the patient said that the slight itching sensation which remained was not confined to the area of the eruption, but was scattered over the entire forearm.

On the eighth day, the crusts which had formed over

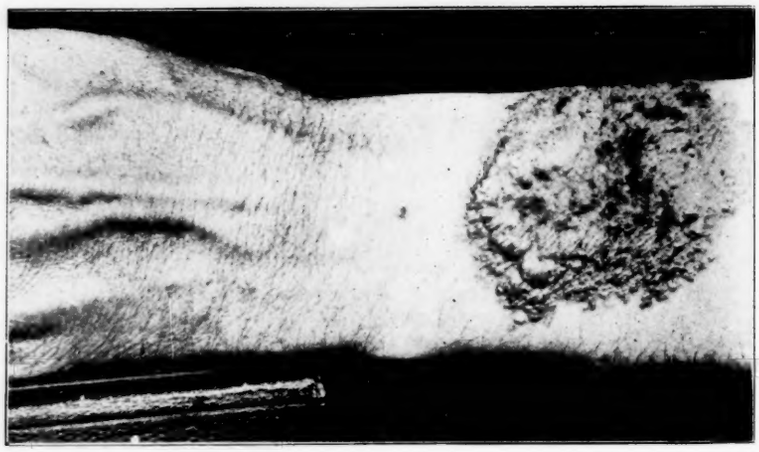

Fig. 3.—Showing the large crust forming over the area and the decrease of the swelling.

the area had begun to scale off, the swelling was practically all gone, and the patient said that he felt about normal again.

Examination of Feces.—The feces of this patient were carefully examined at the beginning of this experiment, the feces being washed and centrifugated, as by this method I have found that it is possible to detect the slightest infection with uncinaria, but no eggs of the uncinaria were found. After beginning the experiment, the feces were examined twice a week, but with negative results until the middle of the sixth week after the soil was placed on the wrist. At this time a few of the eggs of the uncinaria were found in the feces, and after this they steadily increased in number.

As this patient was just out of the hospital after an operation, no examination of the blood was made, as under the circumstances this was considered to be of such uncertain value as not to be worth while.

Soon after the appearance of the eggs in the feces, in reply to questions, the patient said that his bowels were inclined to be loose, and a week or so later this had increased to a mild diarrhea. This cleared up in a week or so more, and the patient said his stools were normal.

Eight weeks after the appearance of the eggs of the uncinaria in the feces of the patient, he was given the usual treatment to remove the parasite, i. e., two doses of thymol of 30 grains each, preceded and followed by a large dose of salts. All the stools were saved for twenty-four hours following the treatment, and these were carefully washed and examined. As a result, 596 adult male uncinaria and 752 female uncinaria were found, making a total of 1,348.

Some time after this the feces of the patient were again examined and found still to contain a few eggs of the uncinaria. Since then he has been given the treatment at two different times, but at the present time still has a slight infection.

SUMMARY.

In the criticisms of the experiments of Looss, Pieri, the assistant of Grassi,[1] states that the experiments of Looss are uncertain, because Looss can not be sure that the infection in his case was not through the mouth on account of his having handled the larvæ so much.

In this last experiment performed by me, I took great pains to be sure that the patient could not come in contact with the larvæ at any other time than when placed on the wrist by me, and the fact that such an enormous number were found in the intestines would discredit any idea that the infection was through the mouth, as mentioned by Pieri.

The deductions from these experiments, I think, are plain. That the disease is contracted through the skin is suported by the clinical observations which I have reported previously. That this is the only way in which the disease is contracted I am not sure, but it appears to be the mode of infection in the great majority of instances.

These experiments also show that the eruption has no tendency to spread when it is not disturbed by scratching and has a duration of only a few days. When the eruption occurs under natural conditons, however, the individual scratches and tears the eruption, infecting the entire area and spreading the infection over a large additional area, and as a result of this the eruption is often weeks in healing up.

A study of the climatic conditions I find to be of value in determining just when and under what conditions these larvæ penetrate the skin in the natural conditions. These observations have not yet been completed. I hope to be able to report on them later.

Last year I reported some examinations of tissue which had been subjected to the larvæ, but in which I had not been able to locate the larvæ. These experiments I have not had an opportunity to repeat, and, therefore, they are still uncompleted.

DISCUSSION.

DR. RICHARD C. CABOT, Boston, said that two great medical achievements have resulted from the war with Spain. We

Fig. 4.—Shows 1348 uncinaria removed from the intestines twelve weeks after the eruption on the wrist.

have freed Cuba of yellow fever and we are now freeing Porto Rico from uncinariasis. To Capt. Baily K. Ashford, U. S. A., and Lieut. W. W. King, U. S. P. H. and M. H. S., we owe much of what has been done. They have conducted a field campaign against the disease among the whole people of Porto Rico. They have field hospitals, tents, etc., which they take from town to town; they camp outside the towns and there they treat the population. The people come

1. Centralb. f. Bakteriol. und Parasit., Erste Abteilung. xxxiv, 1903, 531, and Arch. Italiennes de Biologie, xxxvii, 1902, 269-273.

down to them to be treated. When they have intense anemias to deal with the patients are treated in bed, while those with milder cases take the medicine given them and go home. Every case is diagnosed by means of the microscope, the stools and blood being carefully studied. Two American physicians have organized and pushed a plan to treat practically the entire population of Porto Rico. Dr. Ashford and Dr. King are engaged in this work now, as they have been for a number of months. They were invited to be present at this meeting, but they were detained in the service, and are even now engaged in their splendid work. They ask nothing from us, but their fine service certainly demands from us knowledge of the work and our sympathy. The results have been published in brief, but not in detail in the journals, and are known less widely than they deserve. Dr. Cabot looks on their achievements as destined to be as beneficent as the work of Reed and Carrol on yellow fever in Cuba.

Dr. M. H. Fussell, Philadelphia, asked if Dr. Smith considers the ground itch as the only source of this parasite in the human being, or if the affection may occur by the parasite being swallowed, and whether he has any idea or made any calculations of how many embryos there may have been in the mass that he placed on the patient's wrist. Dr. Fussell understands that the embryo or parasite does not increase in the intestines of the individual. He said that he would also like to know if the blood was examined and the eosinophiles counted.

Dr. Philip King Brown, San Francisco, stated that in San Francisco physicians have experiences with three classes of uncinariasis. The first class came from Mexico, evidently a pure class. Then came soldiers, returning from the Philippines, without having had any symptoms of uncinariasis before discharge. Some of them were kept in the general hospital with amebic infection, and were discharged, but nothing was known regarding the presence of uncinariasis. Many of these cases came to the county hospital. A peculiar thing about some of these soldiers was the striking symptoms that occurred when there were few parasites. Dr. Brown recalled one patient who came near dying of anemia and yet the physicians could find but seven parasites. The third class of cases was found among the Porto Ricans who were sent to the Hawaiian Islands to replace Japanese laborers on sugar plantations. They were not a success, and were returned to San Francisco, where a large majority of them still remain. They present the type of the disease which has been so thoroughly investigated by Ashford. Attempts have been made by Gunn of San Francisco, who has studied the cases in San Francisco very thoroughly, to find the parasite in infants born since these Porto Ricans left their native home, but thus far they have not been successful. He has, however, discovered several cases of bilharzia infection in these Porto Ricans.

Dr. Claude A. Smith, Atlanta, Ga., in reply to the questions stated that, while he can not say that the passage of the parasite through the skin is the only way by which it gains access to the human body, yet from the experiments and from the clinical history of the cases this mode of access appears to be the rule and the ingestion through the alimentary canal the exception. In growing the larvæ in the laboratory, it was noticed that they would climb on the sides of the vessel. This would cause us to suspect that they would climb on plants from their natural development in the soil, and if so, it is possible that they might be swallowed by persons eating raw vegetables. He said that it was impossible to count the number of larvæ contained in the soil which he placed on the wrist of the patient. They were intensely concentrated, more concentrated than they would ever develop under natural conditions. There were undoubtedly many thousands in the small amount of soil which he used, as examination under the microscope showed it to be swarming with them. Autoinfection, he said, is practically an impossibility. His experiments indicate that the larvæ will not attempt to enter the tissues before they are four or six days old, and it is not likely that the eggs would remain in the intestines for this length of time, even if they could find conditions suitable for hatching. As before stated, no blood examinations were made in this case, as the patient was just out of the hospital, and such examinations, therefore, would have been of uncertain value. Dr. Smith inclines to the view that the parasites pass into the veins and thus get into the circulation. In the experiments the inflammation of the forearms above the eruption appeared more as a phlebitis than a lymphangitis. The children of all classes in the South go barefoot in the summer, and all are subject to the ground itch, but it is most common among the poorer classes in the country. As the better classes are less exposed to the disease, they usually have a mild form which can only be diagnosed by the examination of the feces, and as there are no objective or subjective symptoms these cases are generally overlooked. It is only the severe cases which interfere with the development of the person and which present symptoms of the disease. Those individuals who have had only one or two attacks of ground itch have only a small number of the parasites in the intestines, and these produce no effect on the development of the person. It is only when there have been a number of attacks of ground itch (usually covering a period of several years) that there is any interference with the development of the body. A study of the climatic conditions shows that in many sections the conditions favorable to the development of the parasite occur only two or three times during a summer. When the conditions are favorable for the development of the parasite one will usually find every child of an entire family infected, but usually there is not more than one who has the severe type of the disease. In the majority of the cases of the severe type of the disease, the patient will eventually "outgrow" the disease; that is, the child will begin wearing shoes at 15 or 17 years of age, and from that time on the parasites gradually die out.

IRITIS TUBERCULOSA AS DIAGNOSED AND TREATED BY KOCH'S TUBERCULIN.*

WILLIAM E. GAMBLE, B.S., M.D.

Adjunct Professor Ophthalmology and Clinical Ophthalmology, University of Illinois; Ophthalmic Surgeon, Cook County Hospital, etc.

AND

E. V. L. BROWN, B.S., M.D.

Associate in Ophthalmology, Rush Medical College, in Affiliation with the University of Chicago; Pathologist, Illinois Charitable Eye and Ear Infirmary.

CHICAGO.

HISTORY OF THE CASE TREATED.[1]

Patient.—Mr. M. E. S., a clerk, aged 25, consulted Dr. Gamble Aug. 27, 1904, on account of persistent "redness" of the left eye of four months' duration. At no time had there been severe pain. There was no personal history or evidence of syphilis, and the family history of tuberculosis was negative.

Examination.—This revealed ciliary injection and an irregular pupil which responded poorly to light and dilated irregularly under atropin with the exposure of numerous posterior synechia. A reddish growth the size of a pinhead was discovered springing from the inferior temporal root of the iris. With the aid of a Berger loupe, a second smaller growth was seen above the first and nearer the pupillary border of the iris. The nodes were semi-transparent and non-vascular. The iris itself was discolored, its markings indistinct and the media hazy. L. vision, 20/70, that of the fellow eye, 20/50 with no improvement by glasses. The patient had a slight cough, an afternoon temperature of 99.5 and slightly subnormal temperature; pulse, 80; weight, 117 pounds; he is able to be about his work every day.

A general examination by Prof. W. E. Quine reads as follows:

(a) Enlarged glands above the inner third of the left

*Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

1. This patient was shown before the Chicago Ophthalmological Society, Oct. 11, 1904, when the inflammation was at its most florid stage, and again six months later, March 14, 1905, after an apparent cure had been effected.

clavicle. (b) Leucopenia—only 3,500 whites—8 per cent. of them small mononuclear and 32 per cent. large mononuclear (i. e., 'relative' lymphocytosis). (c) A little cough without expectoration or discoverable pulmonary localization. Suggests involvement of the mediastinal glands. (d) No bacilli found in urine. Findings suggest glandular tuberculosis.

Six subsequent examinations of the sputum for tubercle bacilli were negative.

Treatment.—Commencing Sept. 7, 1904, potassium iodid and later mercurial inunctions were used for several weeks. The two nodes not only steadily increased in size and became grayish-opaque, but three additional nodes appeared in the lower nasal quadrant, ciliary injection became more marked and fine precipitates developed over the lower half of the posterior surface of the cornea. These precipitates were not arranged in the classical triangular shape characteristic of serous cyclitis but were spread over the entire lower segment without particular form and indicated rather an extension of the inflammation from the iris below onto the adjacent cornea.

Fig. 1.—Active Iritis Tuberculosa. 1, nodes.

Diagnosis.—Iritis tuberculosa.

Tuberculin Treatment.—Oct. 24, 1904, at the suggestion of Dr. Brown, the patient was placed in a hospital and given injections of Koch's new tuberculin T. R., with the instillation of atropin, as advocated by E. v. Hippel (1904). At this time a drawing of the eye was made (Fig. 1) and notes on the condition of the eye as follows:

On focal and transmitted lights one finds: (1) Nearly complete circum-corneal injection; (2) that the posterior surface of the cornea, especially the lower half, is dotted by pinhead sized, thin, yellowish-white masses; (3) that a deep, smooth, vascularized, light-yellow, translucent, pad-like, lens-shaped node, with flattened anterior surface and sharply convex border is attached by a small, constricted base well down toward the very angle of the iris root beneath the opaque corneo-scleral limbus as if springing from the ligamentum pectinatum. The node lies at the lower end of a line drawn through axis 110 degrees, and measures 2.5 mm. in the vertical plane, 2 mm. in the horizontal and 2 mm. in the antero-posterior plane. At least its superior one-half rides free over the iris and obscures four-sevenths of the iris surface measured from the root toward the pupillary border. Four smaller nodes about the size of pinheads are seen, two of them seated in the sinus angle below, one nasal, and the fourth at the pupillary border directly above the largest node. The pupil measures 5.5 mm. in its greatest diameter (axis 110 degrees) and is very irregular in outline from numerous broad posterior synechiæ.

The first injection of 1/500 mg. of tuberculin T. R. caused no perceptible change in the temperature and excited no local reaction. Thereon the injections were continued, the temperature being taken every two hours, as follows: October 26: 1/500 mg., maximum temperature (rectal) during the day 99.8 at 11:40 p. m. October 31: 12/500 mg. at 6 p. m., maximum temperature, 99.2; 24 hours after the injection the temperature was 100.6; 6 hours later, 100.6. During the morning the ciliary injection, especially that just below the iris nodes, increased markedly. Vessels now stood out prominently over the surface of the largest node and the patient complained of tenderness of the eye on pressure. This local reaction lasted about 12 hours and then abruptly disappeared. November 2: maximum temperature, 99.7; no injection. November 3: maximum temperature, 99.6; no injection. November 4: maximum temperature, 99.6; no injection. November 5, 10/500 mg. at 6 p. m.; no change in the temperature or in the local condition. Injection of 10/500 mg. of tuberculin T. R. at 6 p. m. Twenty-four hours later ciliary injection was again increased and completely encircled the cornea; the large node was deeply congested and of a brick-red color, remaining so for several hours. The maximum temperature (8 p. m.) was 99.8. November 7: 6:40 p. m., temperature, 98.4. Injected 4 mg. of tuberculin T. R. for the purpose of obtaining a diagnostic reaction. November 8: maximum temperature, 4 p. m., of 100, lasting one hour. The large node especially was more hyperemic and the ciliary injection increased. (Reaction not

Fig. 2.—Healed Iritis Tuberculosa.

considered conclusive.) November 11: The patient left the hospital to report at the office for further treatment.

From Nov. 12, 1904, to May 1, 1905, he continued to receive injections with no untoward effects on the temperature or local conditions. Up to the middle of April a withdrawal of the atropin would cause an immediate increase in the ciliary injection. From this time on one drop a day only was required. Two further attempts were made to secure a tuberculin temperature reaction, and by the use of the old and not the new tuberculin (T. R.), viz.: First attempt Nov. 15, 1904; temperature, 99 at 12 m.; 4 mg. of the old tuberculin injected: about ten hours later the patient experienced a marked chill and his temperature rose to 101.6. (Temperature reaction considered conclusive).

Second attempt, December 16: Temperature 99, at 10 a.m. Injection of 5 mg. of the old tuberculin; 8 hours later there was a maximum temperature of 102, followed two and one-half hours later by a chill. Soreness of joints, jaundice and poor appetite persisted for two weeks. (Temperature reaction was considered conclusive.)

March 5, 1905: Under the six months' treatment by tuberculin injections and atropin there has been a steady and gradual improvement in the condition of the eye; e. g., all the nodes have entirely disappeared, the iris has regained nearly the color of its fellow, there is no ciliary injection whatever and close work does not redden the eye in the least; vision has improved from 20/70 to 20/50; he has gained 3 pounds in weight and feels quite well, although the afternoon rise in temperature still continues. The appearance of the eye is very accurately represented in Fig. 2.

July 1, 1905: Conditions unchanged; no evidence of the nodes.

Sept. 8, 1905: Eye quiet. Weight, 125 pound, a gain of eight pounds. No temperature for two months past.

SUMMARY OF THE DIAGNOSTIC AND THERAPEUTIC USE OF TUBERCULIN IN THIS CASE.

We had here, then, a plastic iritis eventuating in the formation of definite nodules. Such nodules may occur in a number of affections, some of which may be excluded at once, as leukemia and pseudoleukemia, by the blood count, and glioma, by the age of the patient. Furthermore, there is no history or evidence of a hair or other foreign body penetrating the eye and causing an iritis nodosa (Saemisch). Syphilis can be excluded with a fair degree of probability by the failure of the potassium iodid and mercury to effect an improvement, and, lastly, leucosarcoma can be eliminated by the markedly inflammatory nature of the affection. Iris nodes caused by other micro-organisms than the tubercle bacillus have been studied experimentally by Sattler[2] and by Stock,[3] but have not been proved to occur in man. While, therefore, the diagnosis of iritis tuberculosa may rightly be made by exclusion, it is further and finally established as we think:

(1) By the positive general reaction to tuberculin, as shown in the typical sudden rise and fall of the temperature on two separate occasions, and amounting to 2 and 2.5 degrees respectively (allowing for the daily afternoon rise), accompanied by marked chills, pains in the joints, etc. (2) By the repeated local reaction in the eye when the dose of tuberculin injected had reached the physiologic limit of about 1 mg., manifested by a marked increase in the ciliary injection, in the tumefaction and vascularity of the iris nodes. (3) By the persistent afternoon rise of temperature, enlarged supraclavicular glands and slight cough, pointing to a focus of tuberculosis elsewhere, to which that of the eye is probably secondary.

2. Vossius: (1891) Beitr. zur Augenh'l'k. heraugeg. von Deutschmann, I. p. 142-188.

3. Stock: (1893) Bericht über d. xxx, Vers. d. Ophth. Gesell. zu Heidelberg, p. 77-99.

REVIEW OF THE LITERATURE ON THE USE OF TUBERCULIN IN THE EYE.

Following the publication of Koch's method in 1890, HENOCH[4] reported that he had obtained a marked local and general reaction from tuberculin in a quiet phthisical eye which had been blind for years following a perforating keratitis, and KOEHLER and WESTPHAL[5] reported that they had seen a 4x2 mm. peripheral corneal ulcer develop in a normal eye, with profound general reaction, four days subsequent to a single injection of 1/100 mg. of Koch's lymph.

The next year witnessed the publication of a large number of observations on the use of tuberculin, both for diagnostic and therapeutic purposes, as follows:

ALBRAND[6] reported tuberculous nodes of the palpebral conjunctiva, with positive inoculation experiments and bacilli findings, absorbed in three weeks by injections of 1/1000 to 3 mg.; quiescent 10 months later.

BELLIARD[7] states that Sulzer obtained a marked local and general reaction in three cases of strumous keratitis with aggravation of the disease.

BONGARTZ[8] reported two cases of iridocyclitis tuberculosa, with bacilli; no reaction from 3 injections of 1/1000 mg.; one eye underwent phthisis bulbi and eye had to be enucleated.

COHN[9] (1) No local reaction or improvement, though general reaction in a bilateral dacryocystitis; used three injections of .75 to 1 mg. (2) Same results in two cases of phlyctenular keratitis, with interstitial keratitis.

ENSLIN[10] reported a case of lupus conjunctivæ, corroborated by Cohnheim's experiment: temporary improvement took place, with recurrence and excision. He used large doses.

GEPNER[11] reported extensive bilateral lupus conjunctivæ, with ulceration, healed by two injections of 1/1000 mg.

GRADLE[12] reported three cases: (1) Interstitial ulcerative keratitis, with perforation, influenced by three weeks' injection (0.15 to 0.3 mg.) with marked local and general reaction. (2) Deep progressive central corneal ulcer healed in 12 days by two injections (0.2 and 0.3 mg.) (3) Shallow progressive central ulcer of each eye entirely healed on two occasions in 11 and 15 days and by 0.2 and 0.5 mg. injections, respectively.

v. HIPPEL[13] reported two cases: (1) Obstinate inflammation of each cornea and lids, remarkably improved by one injection of 1/200 mg. in ten days. (2) Eczematous corneal disease of each eye healed by two injections (1/200 and 3/1000 mg.), with marked general reaction.

KOENIGSHOEFER and MASCHKE[14] reported nine cases: (1) Keratitis interstitialis; clearing of opacities in six days by two injections of ½ mg., with local and general diagnostic reaction. (2) Eczematous corneal ulcer; rapid healing following one injection of ½ mg. (3) Ulcer (4 by 3 mm.) healed in 4 days by ½ mg. injection, with local and general reaction. (4) Ulcer of 2 mm. nearly healed in 5 days, with

4. Henoch: (1890) "Mittheilungen über das Koch'sche Heilverfahren gegen Tuberculose." Berl. klin. Woch., No. 51, p. 1169-1171.

5. Koehler and Westphal: (1890) "Ueber die Versuche mit dem von Herren Geh. Koch gegen tuberculose empfohlenen Mittel." Deutsche med. Woch., No. 47, p. 1058-1066.

6. Albrand: (1891) "Erfahrungen über das Tuberculin aus der Professor Schoeler'schen Augenklinik in Berlin." Klin. Monatsbl. f. Augen. 1, p. 149-168.

7. Belliard: (1891) "Les effets du liquide de Koch dans la keratite strumeuse." Ann. d. Ocul., cvi, p. 26.

8. Bongart: (1891) "Ueber die Ausbreitung der tuberculosen Infection im Auge auf Grund pathologisch Anatomischen Untersuchungen." Inaug. Diss. Wuerzberg. 20 pages.

9. Cohn: (1891) "Notizen über Einspritzungen Koch'scher Fluessig'keit bei Augenleiden." Berl. klin. Woch., No. 7, p. 175-176.

10. Enslin: (1891) Centr. f. prakt. Augenh'k. d., p. 43.

11. Gepner: (1891) "Ein Fall von Bindehautlupus, nach dem Koch'schen Verfahren behandelt." Cent. f. prakt. Augenh'k'd., xv, p. 1-7.

12. Gradle: (1891) "The Curative Influence of Tuberculin on a Certain Type of Corneal Ulceration." The Chicago Med. Rec. II, p. 544-549.

13. v. Hippel: (1891) "Aus der Klinik. f. Augenheilkunde. Klin. Jahr. (Erganzungband), p. 682.

14. Koenigshoefer and Maschke: (1891) "Beobachtungen über die Wirkung des Koch'schen Heilmittels bei Augenerkrankungen." Deuts. med. Woch., No. 2, p. 72-77.

local and general reaction. (5) Ulcers of 2 mm. and less healed in 2 days by ½ mg., with local and general reaction. (6) Large ulcer healed in 6 days by two injections of ½ mg., with local and general reaction. (7) Iris nodes almost entirely absorbed in 10 days by three injections of ½ to 1 mg. (8) Large nodes on lid margins of each eye absorbed in five days by two injections of ½ and 1 mg.; temperature reaction only. (9) Small tumor of tarsal conjunctiva absorbed in 7 days by two injections of ½ and 1 mg., with local and general reaction.

LANDGRAF[15] reported a case of granuloma tuberculosum filling one-half of anterior chamber and invading the ciliary body, reduced to a minimum by 24 almost daily injections of 1/1000 to 1/500 mg., with local and general reaction.

LEBER[16] reported a case of nodes over the whole iris resorbed without a trace in 7 weeks by 10 injections of 1/1000 to 8/1000 mg. extending over but 4 weeks; local and general reaction.

MIKULICZ[17] reported fresh phlyctenule caused by tuberculin injections for a tubercular elbow joint.

PFLUEGER[18] reported conjunctival tuberculosis, with local and general reaction on each of 12 injections (1/500 to a few mg.), with increase in the size of the tubercular areas.

SATTLER[19] reported three cases: (1) Tuberculous nodes and ulcer of palpebral conjunctiva, corroborated by Cohnheim's experiment, permanently healed by 15 injections of 1/200 to ¼ mg. (2) Trachoma-follicle-like fornix tubercular nodes, corroborated by Cohnheim's experiment, healed by 10 injections of 1 to 10 mg. (3) Lupus conjunctivæ, corroborated by Cohnheim's experiment, without definite results in the time treated.

SCHAFFRANEK[20] reported a case of lid and corneal disease entirely relieved by 4 injections of 1/1000 to 8/1000 mg. in 4 weeks, with local and general reaction.

SCHWANN[21] reported an almost lens-sized corneal ulcer healed in 15 days by 6 injections of 1/1000 to 7/1000 mg., with local and general reaction.

SCHWEIGGER[22] reported three cases: (1) Caries and abscess of the lower orbital margin healed completely in 2 weeks by 3 injections of 1.5 to 4 mg., with local and general reaction. (2) Corneal infiltration and eczema much improved by 2 injections of 2 and 5 mg. in ten days, but with no decided local or general reaction. (3) Lachrymal disease, with no reaction or improvement on 7 injections of 1 to 10 mg. (4) Blennorrhea of the sac, with possible bone disease, without local reaction or improvement, though general reaction on 2 injections of 5 mg. each.

SILEX[23] reported lupus of face and lids somewhat improved at first by the injections, but much worse later, and somewhat improved finally by other treatment; 120 mg. in all were used.

UHTHOFF[24] used 1/5000 to 1/1000 mg. injections in 10 cases of phlyctenulæ, keratitis superficialis vascularis, keratitis fascicularis, corneal ulcer, etc., with general reaction in all, but local reaction in only 3, and a generally favorable and prompt result in the treatment.

WAGNER[25] reported four cases: (1) Three cases of lupus of the lid skin, with fistulous dacryocystitis, healed by 25 injections of 1/200 to 30 mg., with local and general reaction in each. (2) Tuberculous ulcer of palpebral conjunctiva, cured in 4 weeks by 2 injections of 1/1000 to 1/500 mg., with temperature reaction. (3) Node-form tubercular scleritis cured in 6 weeks by injections of 1/200 mg., increased by 3 mg. each dose, with local and general reaction. (4) Tubercular iris nodes reduced to a minimum by injections of 7/1000 to 1/10, with local and general reaction.

Subsequent to 1891 we find the following reports:

HAASE[26] reported a case of iridocyclitis tuberculosa, with general but no local reaction on 9 injections of 1 to 4 mg. extending over 2 months; though the nodes disappeared two months later, the author thinks it was not due to the tuberculin.

KUNZ[27] recommends the use of tuberculin for diagnostic purposes.

ZIMMERMANN[28] reported the case of a patient with severe tuberculosis of the eye, confirmed by a histologic examination, cured by injections of 1/500 mg.; the fellow eye had been removed five years before.

GRADLE[29] used tuberculin in 4 cases of interstitial keratitis, with positive febrile reaction in all.

REIMAR[30] reported that two months' use of tuberculin (6/10000 to 1 mg.) had no essential local or general effect or curative action in a case of tuberculosis of the conjunctiva with bacilli on histologic examination and with positive inoculation experiments.

SCHIECK[31] studied the subject very carefully and reported 5 cases, with a general favorable result, as follows: (1) A large iris node disappearing under injections of 1/10 to 5 mg. of the old tuberculin during 6 months, with recurrence and resorption, and a second recurrence and resorption by 1/500 to 4 mg. of the new tuberculin T. R., with final quiescence of 2 months; temperature reaction. (2) Iris angle nodes disappearing on 2 injections of 1/5 to ½ mg., with extensive recurrence over 2/3 of iris and resorption in 5 months by 1/20 to 5 mg. and even 18 mg., without essential local or general reaction; second recurrence over two-thirds of iris and final resorption after 2 months of ½ to 5 mg., and nine and one-half years of quiescence (v. Hippel). (3) Iritis plastica treated 5 weeks by ½ to 1 mg. injections, without local or general reaction or improvement, but with the development of lupus nodes; all were later cured in 4 weeks under expectant treatment. (4) Iris node in each eye with development of a hypopyon under 1/200 to 7/10 mg. injections extending over 3 weeks and subsequent absorption of hypopyon and nodes under expectant treatment, with 2 years of quiescence. (5) Iris and corneal nodes entirely absorbed under 24 injections of 1/500 to 1 mg. in three months, with no local or general reaction; 5 years of quiescence.

UHTHOFF[32] contributed a notable case of conjunctival tuberculosis, in which the nodes excised gave a positive experimental tuberculosis in a rabbit and tubercle bacilli were found on anatomic study, yet a careful tuberculin test with 2 injections of 1/10 and 0.000375 mg., respectively, gave no local reaction, though some temperature reaction. The disease was not influenced.

15. Landgraff: (1891) "Tuberculose Geschwulst der Uvea, mit Koch'scher Fluessigkeit behandelt." Berl. klin Woch., No. 11, p. 285-296.
16. Leber: (1891) "Ueber abgeschwaechte Tuberculose des Auges." Bericht d. xxi. Ophth. Gesell. zu Heidelberg, p. 44-60.
17. Mikulicz: (1891) Quoted by Cohn, Berl. klin. Woch., No. 7, p. 175.
18. Pflueger: (1891) Bericht d. xxi Ophth. Gesell. Zu Heidelberg, p. 67-70.
19. Sattler: (1891) "Ueber die Behandlung der verschieden Formen der Conjunctival-Tuberculose mit Tuberculin nebst experimentellen Untersuchungen über die Wirkung derselben." Bericht d. xxi, Ophth. Gesell. zu Heidelberg, p. 33-44.
20. Schaffranek: (1891) "Weitere Mittheilungen über die mit dem Tuberculin gewonnen Erfahrungen." Deut. med. Woch., No. 32, p. 1199-1200.
21. Schwann: (1891) "Fall von tuberculoesem Hornhautgeschwuer des rechten Auges. Heilung nach 6 Injectionen." Deut. med. Woch., No. 3, p. 116-117.
22. Schweigger: (1891) "Aus der Klinnik f. Augenkranke. Klin. Jahr. (Ergaenzungshand), p. 220-224.
23. Silex: (1891) "Robert Koch's neues Heilverfahren." Deut. med. Zeit., p. 165, and Allgem. med. Central-Zeitung, p. 386-387.
24. Uhthoff: (1891) "Ein Beitrag zur Behandlung Augenkranker nach dem Kochlischen Verfahren." Berl. klin. Woch., No. 7, p. 1722.
25. Wagner, H.: (1891) "Die Tuberculose des Auges und der Erfolg der Anwendung des Koch'schen Tuberculins bei derselben." Muench. med. Woch., No. 15, p. 266-268, and No. 16, p. 286-287
26. Haase: (1893) "Ueber Tuberculose des vorderen Tractus uvealis." Inaug. Diss. Kiel., 33 pages.
27. Kunz: (1898) "Ueber die Tuberculose des Auges und seiner Adnexe." Inaug. Diss., Marburg.
28. Zimmermann: (1898) "Experimentelle und anatomische Untersuchungen über die Einwirkung der neuen Koch'schen Tuberculinpraeparate." Die Ophth. Klinik, Nos. 8 and 9, p. 144-148, and No. 10, p. 172-175.
29. Gradle: (1900) "Scrofulous Keratitis." Trans. Sect. on Ophth. 51st Meeting of the A. M. A., p. 44-53.
30. Reimar: (1900) "Casuistische Beitraege zur Conjunctival tuberculose." Klin. Monatsbl. f. Augen., xxxviii, p. 83-96.
31. Schieck: (1900) "Klinische und experimentelle Studien über die Wirkung des Tuberculins auf die Iristuberculose." Arch. f. Ophth. 1, 2, p. 247-359.
32. Uhthoff: (1900) "Bemerkungen zur Scrophulose und Tuberculose nebst einem Beitrag zur Tuberculose der Conjunctiva." Berl. klin Woch., No. 50, N. 1144-1148.

MORAX and CHAILLOUS[33] reported three cases: (1) Tuberculous nodes over one-half of the cornea and on the lids of each eye absorbed in two weeks after an injection of tuberculin, with a local and general reaction. (2) Iris nodes absorbed in six weeks after one injection of 1/20 mg., accompanied by both local and general reaction. (3) Nodes in the cornea absorbed on one injection of 1/20 mg. and the use of mercury and potassium iodid.

FALCKENBERG[34] reported cases of iris and choroidal, as well as probable bone tuberculosis. No improvement after one month of 1/500 to 1/50 mg. injections, though there was both local and general reaction, and inoculation experiments were positive. The eye was enucleated following a spontaneous perforation, and the patient died one month later from meningitis. (2) Iritis tuberculosa, with no improvement or local or general reaction on 10 injections of 1/500 to 1/20 mg. during 18 days, and enucleation followed by death one month later from meningitis. No bacilli were found, though inoculation experiments were positive. Falckenberg says he thinks the doses were not sufficiently large or numerous.

HAAB[35] used tuberculin for diagnostic purposes in many cases in which the diagnosis was not clear, among them two cases of iritis tuberculosa, with marked local reaction in the nodes, as well as the febrile reaction.

ENSLIN[36] obtained a typical tuberculin temperature reaction in 8 cases of keratitis parenchymatosa, and with local reaction in some of them by 1/10 to 3 mg. injections; also in a case of conjunctival tuberculosis and in a case of iris tuberculosis.

HANDMANN[37] reported two cases: (1) Iris angle nodes reduced to 1/2 or 2/3 by 9 weeks of injections of 1/1000 to 3 mg., and completely absorbed one and one-half years later. (2) Iris nodes in each eye absorbed with scarcely a trace left after 10 weeks of 1/100 to 2 mg. Local and general reaction.

KRUECKMANN[38] considers the diagnostic value of tuberculin to be very great in doubtful cases.

v. MICHEL[39] saw small nodes appear on the iris and sclera a few hours after an injection of tuberculin in iritis.

PETELLA[40] used tuberculin T. R. for diagnostic and partly for therapeutic purposes in two cases, one of conjunctival tuberculosis, and recommends it as the most certain diagnostic means.

PFLUEGER[41] has used tuberculin for diagnostic purposes for the past two years with the most satisfactory results. He considers its diagnostic reaction to be of great weight in doubtful cases.

SALIE[42] reported three cases: (1) Tubercular tarsal-conjunctival excrescences absorbed in 7 weeks by 10 injections of 1/500 to 6/500 mg. with slight local and general reaction; recurrence with a 4x1 mm. ulcer the following year, again healed by injections. (2) Tarsal conjunctival excrescences and ulceration healed by 25 injections of 1/500 to 21/550 mg. in three months. Inoculation experiments were positive. (3) Tubercular granulations and ulcer of the tarsal conjunctiva slowly healed by 61 injections of 1/500 to 21/50 mg., along with 5 cauterizations extending over 4 months. Inoculation experiments were positive.

DARIER[43] reported a case of interstitial keratitis treated with good results; the cornea cleared after a number of injections. There were marked local reactions.

ENSLIN[44] used tuberculin as a differential diagnostic means between lues and tuberculosis in 24 cases of keratitis parenchymatosa; five gave the typical local and general reaction.

HAAB[45] used tuberculin for diagnostic purposes with positive results in suspected tuberculosis of the conjunctiva 2; of the lachrymal gland 1; in severe corneal eczema 1; iritis with and without definite nodes 9; conglomerate tubercle of the choroidea 1; choroiditis 3;; neuroretinitis 2; choked disc 2. He obtained the local diagnostic reaction in each case. He saw improvement from tuberculin therapy in uveal tuberculosis a nodular tubercular iridochoroiditis entirely cured by 14 injections, and a choroiditis with striking local reaction, though no curative results, on 4 injections.

MORINAMI[46] reported that Kayser says he obtained a local and general reaction in three cases of a chronic type by the use of 1 to 3 mg. of tuberculin.

WEIGELT[47] reports a large iris tubercle markedly reduced in size by 4 weeks' treatment by new tuberculin, although several smaller nodes appeared in other parts of the iris.

DUPUY-DUTEMPS[48] reported that the results of tuberculin are sometimes unsatisfactory.

GROENOUW[49] speaks at length of the diagnostic and therapeutic use of tuberculin.

HESS[50] has treated 9 cases of iritis tuberculosa with tuberculin T. R. with a favorable result in all, and an unfavorable result in none. He says tuberculin should find more extended systematic use as a diagnostic means.

v. HIPPEL[51] reported ten cases: (1) Iris nodes each eye absorbed by 26 injections of 1/500 to 1/12 mg. in two months; recurrence 4½ years later with perforation of the cornea; nodes absorbed after 33 injections, though phthisis bulbi was inevitable in one eye. (2) Iris nodes absorbed in 7 weeks by 23 injections of 1/500 to 1 mg., with 4 years quiescence. (3) Iris nodes absorbed by 56 injections of 1/500 to 1/50 mg. in 4½ months, with 2 years of quiescence. Histologic corroboration later by Schmidt-Rimpler. (4) Severe corneal and iris tuberculosis with nodes absorbed by 36 injections of 5/500 to 6/50 mg. in 3 months. (5) Iris nodes disappeared on 69 injections of 1/500 to 9/50 mg. in 1 month. (6) Primary tuberculosis of ciliary bodies; iris nodes absorbed and cyclitis completely cured by 68 injections of 1/500 to 40/50 mg. in 5 months. (7-9) Three cases of severe conjunctival tuberculosis permanently healed by tuberculin without lid malposition, after resisting 6 months of other treatment. (10) Severe scleral tuberculosis and corneal nodes absorbed by 1/500 to 1/5 mg. Recurrence and cure after more injections, with 6 months' quiescence.

v. MICHEL[52] remarked that he had seen very severe local and general reaction in iritis tuberculosis after tuberculin injections. A severe pneumonia followed an injection in disease of the lachrymal sac. The persons affected were not especially weak persons. He warns against the therapeutic use of tuberculin, and says it is preferably used for diagnostic purposes.

33. Morax and Chaillous: (1901) "Le diagnostic des affections tuberculeuses de l'appareil visuel." Ann. d'Ocul., cxxvi, p. 119-132.

34. Falckenberg: (1901) "Ein Beitrag zur Pathologie und Therapie der Iridocyclitis tuberculosa." Inaug. Diss. Tuebingen, 24 pages.

35. Haab: (1902) "Bericht über d. xxx Vers. d. Ophth. Gesell, zu Heidelberg p. 131.

36. Enslin: (1902) "Ueber die diagnostische Bedeutung des Tuberculin auf ophthalmologischen Gebiete." Allgem. med. Central Zeit., No. 94, p. 1115-1116.

37. Handmann: (1902) "Zur Behandlung der Iristuberculose mit Tuberculin—TR." Klin. Monatsbl. f. Augen., xl, II, p. 219-227.

38. Krueckmann: (1902) "Ueber Iridocyclitis syphilitica Bericht d. xxi Vers. d. Ophth. Gesell. zu Heidelberg, p. 117-133.

39. Michel: (1902) Bericht über d. xxx Vers. d. Ophth. Gesell, zu Heidelberg, p. 132.

40. Petella: (1902) "Sulla tuberculosi della conjuntive oculopalpebrale." XVI Congresso dell' Assoc. oftalm. ital. and Annali di Ottalm. e Lavori della Clinica Oculisticadi Napoli xxxi, p. 731. Rev. in Arch d'Ophth., xxiii, July, 1903, p. 484.

41. Pflueger: (1902) Bericht über d. xxx Vers d. Ophth. Gesell. zu Heidelberg, p. 131.

42. Salie: (1902) "Ueber die Erfolge der Tuberculinbehandlung bei Conjunctival-Tuberculose." Inaug. Diss. Goettingen, 37 pages.

43. Darier: (1903) "Subconjunctival Injections of Tuberculin T. R. in the Treatment of Interstitial Keratitis." Brit. Med. Jour., September 26, p. 721-722.

44. Enslin: (1903) "Ueber die diagnostische Verwertung des Alt-Tuberculins bei der Keratitis parenchymatosa." Deut. med. Woch., No. 8, p. 130-133, and No. 9, p. 155-157.

45. Haab: (1903) "Ueber die Anwendung des Tuberculins bei Augenerkrankungen." Corresp. f. S. Aertze, No. 21, p. 725-730.

46. Morinami: (1903) "Beitraege zur Therapie und Diagnose der Augentuberculose." Inaug. Diss., Rostock. klin. Monatsbl. f. Augenh'l'k., xlii, I, p. 115-123.

47. Weigelt: (1902) "Iris-tuberkel mit Neu-tuberculin behandelt." Die Ophth., Klinik, S. 372.

48. Dupuy-Dutemps: (1904) "Tuberculose der Chorioidea." See klin Monatsbl. f. Augenh'l'k., xlii, Part I, p. 103.

49. Groenouw: (1904) "Tuberculose," Handbuch d. gesamt. Augenheilkunde, 2d Ed., vol. xi., Part I, p. 670-737.

50. Hess: (1904) "Tuberculose des Auges." See Klin Monatsbl. f. Augenh'l'k., xlii, I, 115-123.

51. v. Hippel: (1904) "Ueber den Nutzen des Tuberculins bei der Tuberculose des Auges." Arch f. Ophth. lix, I, p. 1-30.

52. v. Michel: (1904) "Ueber Versuche mit Tuberculin zu Heilwecken." Klin. Monatsbl. f. Augenh'l'k., xlii, II, p. 145 and 146.

MOISSONNIER[53] recommends the diagnostic use of tuberculin in doubtful cases.

PUCCIONI[54] reported that tuberculosis, especially when localized in the anterior chambers, reacted to tuberculin. Later anatomic examinations demonstrated the tubercular nature of the disease.

SCHOELER[55] used tuberculin methodically to determine the diagnosis in 48 cases, including scleritis, iritis serosa, keratitis parenchymatosa and choroiditis disseminata. He very strongly advised the use of the drug along with and in preference to other means of diagnosis.

USE OF TUBERCULIN IN OPHTHALMOLOGY.

Findings.	Positive Diagnosis Results.	Good Therapeutic Results.	Injurious Therapeutic results.	No Therapeutic results.
General reaction.	Gradle (1900). Wehrli	v. Hippel (1891) 2. Koenig-hoefer & Maschke 8. Wagner 2. Schieck 1. Stanculeano 4,5,6,7,8.	Koehler & Westphal.	Cohn 1, 2. Schweigger 4. Haase.
Local reaction.	Pflueger (1902). Haab (1903). Hess. Moissonier. Schoeler	Uhthoff (1891). Darier. Haab (1903).	v. Michel (1902).	Haab (1903).
General and local reaction.	Henoch. Enslin (1902) v. Michel (1904). Morinami.	Koenigshoefer & Maschke 1, 3, 4, 5, 6 9. Landgraf. Leber. S haffranek. Schwann. Schweigger 1. Uhthoff (1891). Wagner 1, 3, 4. Morax & Chaillous 1, 2. Haab (1902). Handmann 2. v. Hippel (1904) 1. 2. 4, 5, 6. 7, 8, 9. 10 Stanculeano 1, 2, 3. Wehrli.	Belard (Sulzer). Pflueger (1891). v. Michel (1904).	Gradle (1891) 1.
Tubercle bacilli found.	. . . . .	. . . . .	. . . . .	Bongartz.
Positive inoculation experiments.	. . . . .	Sattler 1, 2. Salie 2, 3.	. . . . .	Enslin(1891). Sattler 3.
Positive inoculation experiments with general and local tuberculin reaction.	. . . . .	. . . . .	Falckenberg 1.	
Positive inoculation experiments and tubercle found.	. . . . .	Albrand.	. . . . .	Uhthoff (1900). Reimar.
No general or local reaction or positive inoculation experiments or tubercle found.	Kunz. . . . . Petella. Pflueger (1902).	Gepner, Koenigshoefer & Maschke 2, 7. Gradle (1891) 2,3. Schweigger 2. Schieck 2, 5. Morax & Chaillous 3. Handmann 1. Petella. Salie 1. Weigelt. v. Hippel(1891)1. Hess. Reunert.	Mikulicz . .	Schweigger 3. Silex. Schieck 3, 4. Falckenberg 2, Dupuy-Dutemps.
Histologic examination revealed tuberculosis.	Puccioni. .	Zimmermann. v. Hippel (1904) 3.		

The small numbers after the author's names refer to case numbers in their reports.

STANCULEANO[56] reported eight cases: (1) Corneal infiltrate markedly improved on 10 injections of 1-5 mg. in 8 weeks. Local and general reaction. (2) Similar cases (6 injections during 7 weeks). (3) Keratitis and iritis with improvement by 1 injection of 1-5 mg., extending over 11 weeks. Local and general reaction. (4) Keratitis and iritis improved by 6 injections of 1-5 mg. during 4 weeks. General, but no local reaction. (5) Keratitis, with slight iritis, with general but no local reaction to 4 injections of 1-5 mg. (6-8) No local reaction, though reaction on 1 and 2 injections of 1/10 to 2 mg.

KAYSER[57] gives an extended review of recent diagnostic and therapeutic measures employed in tuberculosis of the eye, including the use of tuberculin.

WEHRLI[58]: A case of lupus cornea, with a certain reaction (temperature of 100.4 degrees).

REUNERT[59]: Tuberculous iris nodes completely absorbed in 7 weeks by 6 months of injections (1/500 to 1 mg.), given every other day, with 4 months of subsequent quiescence. (v. Hippel.)

The accompanying table comprises a summary of the case reported.

CONCLUSIONS.

There is very little question as to the value and reliability of tuberculin as a diagnostic agent. Failure to obtain the reaction on one injection, however, is not conclusive, and, according to Tinker,[60] successive doses of 3, 6 and even 9 mg. should be used before tuberculosis be considered definitely excluded. Our own experience, however, although confined to but one case, would lead us to recommend that the very lowest possible dose be used in view of the profound general reaction which we have seen with a 5 mg. injection. The early view that its use caused a dissemination of the tuberculous material throughout the body has been very much modified in recent years.

Tinker has used it for general diagnostic purposes in over 400 surgical cases, with no untoward results that could be directly attributed to its use. He notes that Virchow's objections were very cautiously expressed and only once, and were based on 21 postmortems made during the first year of the use of tuberculin when very large doses were employed. Even at that time, however, his views were opposed by Ziemssen, Gultmann and Ehrlich, Schede, Curschmann and others. As to its therapeutic value, less may rightly be said, since far too few conclusive cases have as yet been studied, the present case being but the thirty-third detailed report in the literature. Much tuberculous disease of the eye is of a chronic, non-virulent type, with sparse bacilli findings and a more or less pronounced tendency to spontaneous healing, as first pointed out by Leber[16] (1891). Such patients can certainly be helped by tuberculin, and the series of cases contributed by Schieck[31] and v. Hippel[12] in particular show that very advanced tuberculosis can be arrested, improved or entirely cured with years of subsequent immunity.

Professor v. Hippel closes his article with the statement:

"On the ground of the facts which I have contributed I consider it indicated that we possess in tuberculin T. R. a means which, if rightly used, will permanently heal the severest tuberculosis of the eye."

53. Moissonnier: (1904) "Irido-cyclite tuberculeuse." Arch. d'Oph., xxiv, p. 438-455 and Klin. Monatsbl. f. Augenh'l'k., xlii, p. 596.

54. Puccioni: (1904) "Tuberculosi oculare. Clinica oculistica." Mars. p. 1615-1616. Rev. in Revue Gen. d'Ophthalmologie, xxiv, No. 1, p. 13.

55. Schoeler: (1904) "Vorlaeufige Mitteilung über Versuche mit Tuberculin zu Heilzwecken." Klin. Monatsbl. f. Augenh'l'k, xlii, p. 606 and xliii, I, p. 115-123.

56. Stanculeano: (1904) "Recherches diagnostique et therapeutique da la keratite parenchymatem an moyen de lu tuberculin T.," Ann d'Ocul., cxxxii, p. 340-352.

57. Kayser: (1905) Ueber die Tuberculose des Auges." Klin. Monatsbl. f. Augenh'l'k., xliii, I, pp. 115-123.

58. Wehrli: (1905) "Die knoetschenfoermige Hornhauttruebung (Groenouw) eine primaere, isolierte, chronische, tuberculoese Erkrankung der vorderen Schichten der cornea—Lupus corneae." Zeits., f. Augenh'lk'de, No. 4, p. 322-335; No. 5, p. 461-479; No. 6, p. 558-578.

59. Reunert: (1905) "Ueber die durch Tuberculose bedingten pseudo-leukæmische. Erkkrankungen und ihre Behandlung mit Neutuberculin. Unter Mitteilung eines mit In stuberculose komplizierten Falles." Deut. med. Woch., xxxi, No. 23, p. 907-110.

60. Tinker: "The Value of Tuberculin in Surgical Diagnosis," Johns Hopkins Reports, vol. II, 1903, p. 535-565.

DISCUSSION.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind., said that he had a similar case of tuberculous iritis under tuberculin treatment at the time, and that he had the pleasure of seeing Dr. Brown's case when it was presented before the Chicago Ophthalmological Society for diagnosis, and at the time suggested the use of tuberculin to establish a diagnosis. He believes that ophthalmologists are apt to be led into error as to the value of tuberculin in establishing a diagnosis unless certain well-defined rules are followed in its use. Dr. Bulson said that while Dr. Brown speaks of using small doses for diagnostic purposes and increasing the dose if no reaction is secured, he is inclined to agree with many observers that a large dose, say from 10 to 12 milligrams, is warranted as an initial diagnostic dose, and if no reaction is secured the dose may be repeated in the course of a few days. Even in the presence of a localized tuberculous infection a small dose of tuberculin may produce absolutely no reaction. It is of the most importance that a record of the temperature for three days prior to the injection be carefully kept for comparison with the record following the injection, as some of these patients having only a localized area of tuberculous infection, as in the iris, will show very little reaction, even with a large dose of tuberculin. On the other hand, a decided reaction should not be accepted as a positive indication that the patient has tuberculosis, for the rise in temperature may be only coincident, as Dr. Bulson has known it to be on two occasions in the practice of one of his confrères. The injections should be sufficiently large and continued over a sufficient period of time definitely to establish the fact that a reaction is or is not being produced by the injections. Syphilis should be excluded, as it has been known to influence reaction from tuberculin injections. The case of tuberculous iritis in a 4-year-old child which Dr. Bulson has under tuberculin treatment at the present time, exhibited a marked reaction on several occasions to injections of 10 milligrams, but has failed to show reaction to doses of half that size. With each injection the eye, which has lost light perception, but gives the patient no discomfort, assumes an angry red appearance, and the seven nodules on the iris become infiltrated and swollen. This local reaction in the eye lasts from twelve to thirty-six hours, leaving the eye about as it was before the injection. Treatment has been carried on regularly for about six weeks, and though the general physical appearance of the patient has improved, the condition of the eye seems to be unchanged. As a means of establishing a diagnosis of tuberculous iritis, the injection of tuberculin is certainly warranted, but as nearly as Dr. Bulson can learn by reference to the literature on the subject, the curative value of tuberculin in these cases depends largely on whether the lesion is localized and on its degree of advancement.

DR. E. V. L. BROWN, Chicago, said that the absolute diagnostic value of tuberculin for tuberculosis, and tuberculosis only, is now very generally accepted. The syphilographers are united on this point. The article by Tinker in *Johns Hopkins Hospital Reports* is very conclusive, and Dr. Brown thinks, can be relied on as being absolutely diagnostic. In reply to a question, he said that the use of air in the anterior chamber in these cases was reviewed by Kaiser recently in the *Klin. Monatsbl. f. Augenheilkunde.*

PNEUMONIA IN THE YOUNG.*

EDWARD F. WELLS. M.D.

Professor of Clinical Medicine and Associate Professor of Practice of Medicine in the College of Medicine of the University of Illinois; Physician to Cook County Hospital.

CHICAGO.

Pneumonia is always interesting. In the young, interest is heightened by the statistics and statistical fallacies of its prevalence; by important problems connected with its causation and avenues of bacterial invasion, by modifications in its morbid anatomy and symptomatology, by the frequency of serious complications, by the apparent difficulties of diagnosis, by the uncertainties of prognosis, and by the chaotic state in which we find the literature of its management.

To estimate fairly the prevalence and fatality of pneumonia in the young is a statistical and judicial feat of no mean proportions. In tabulating and analyzing 30,025 cases of, and 225,642 deaths from pneumonia, the following conclusions may be drawn: During early childhood pneumonia is encountered oftener than at any other period; from 10 to 30 years, much less

TABLE SHOWING PREVALENCE OF PNEUMONIA BY AGE PERIODS.

Morbidity.	Age periods.								Total.
Authority	0 10	10 20	20 30	30 40	40 50	50 60	60 70	70 *	....
Aufrecht	103	333	437	259	195	83	62	29	1,501
Bamberger	2	23	62	38	28	23	5	6	187
Biach	7	259	489	259	209	128	92	43	1,522
Chomel	...	...	83	63	61	38	...	...	245
Derpmann	306	257	156	161	137	96	43	20	1,176
Dietl	...	142	187	127	129	82	61	22	750
Doubleday	2	21	88	60	41	18	16	2	248
Dusch	223	28	...	...	...	...	...	...	251
Eisner	4	33	47	28	23	6	5	3	149
Feldhausen	8	14	11	12	4	4	2	1	56
Flint	...	13	44	37	17	7	...	...	118
Franque	...	98	260	182	113	98	121	...	872
Fricke	22	47	46	24	14	11	5	...	169
Funck	416	65	56	134	136	70	64	...	941
Fussell	57	27	18	8	13	11	2	...	136
Graf	10	3	3	11	5	5	5	4	46
Grissole	...	118	272	175	152	123	63	21	924
Gunsburg	...	1,500	850	800	500	450	350	550	5,000
Hall	3	16	22	13	5	6	3	2	70
Holt	448	52	...	...	...	...	...	...	500
Holwede	15	...	...	...	...	...	...	...	15
Huss	9	229	1,041	816	363	125	29	4	2,616
Juergensen	171	22	21	23	22	29	29	13	330
Kissel	52	18	15	11	6	3	...	1	106
Krause	56	3	...	...	...	...	...	...	59
Lebert	4	34	72	41	37	23	10	1	222
Moelmann	51	31	18	33	25	35	23	6	222
Munich Hosp. ..	169	187	143	51	68	32	...	1	651
Norris	71	71	136	84	67	30	13	7	479
Pause	34	36	15	29	19	9	14	13	169
Pye-Smith	95	93	87	62	54	20	18	5	435
Rall	14	3	...	2	2	6	5	3	35
Rietz	158	44	18	32	38	22	34	11	357
Roth	1	25	79	43	30	34	15	10	237
Rochester	3	15	43	36	24	18	12	17	167
Sampter	9	64	116	73	41	22	5	1	331
Schapira	2	71	73	27	24	26	27	8	258
Scheef	25	2	3	3	5	2	4	...	44
Schiel	25	4	13	27	22	27	19	22	159
Schlesinger	...	20	31	17	10	2	3	...	83
Schlesinger, E..	159	18	...	...	...	...	...	...	173
Scroeder	514	116	80	127	101	71	58	48	1,120
Sears & Larrabee	...	66	229	241	191	93	48	19	887
Smith, A. A....	...	1	18	23	9	5	3	1	60
Smith, H. H....	31	42	123	99	73	34	24	8	434
Speck	2	12	12	7	10	5	2	...	50
Stecher	13	118	290	90	59	50	24	12	656
Stortz	...	83	67	38	31	27	22	8	276
Tate	2	9	9	10	11	2	2	1	46
Townsend and Coolidge	10	113	373	217	116	80	32	12	953
Vienna Hospital	7	395	408	231	134	128	58	20	1,410
Waller	...	20	31	9	8	9	4	...	81
West	220	246	225	132	96	4	2	...	925
Wünderlich ...	4	10	6	8	13	5	3	1	50
Ziemssen	163	23	...	...	...	...	...	...	186
Author	367	86	96	51	65	55	113	53	888
Totals	4,068	5,411	7,021	5,084	3,597	2,291	1,552	1,001	30,025
Percentages ...	11.4	18.0	24.6	17.4	12.0	7.9	5.4	3.5	100

Mortality.									
California, 84.....	56	9	12	26	34	17	22	10	166
Cleveland, 87.....	184	15	17	16	21	17	21	20	311
Connecticut, 1886..	239	28	59	59	75	199	126	204	889
Massachusetts, 63-81 .	15104	449	954	2428	2786	3176	3497	6945	35339
New York, 76.....	1308	41	116	161	178	172	153	179	2288
Ontario, 83-6.....	1832	308	515	437	453	445	494	570	5054
Pye-Smith.....	6	7	19	21	31	14	9	3	110
Rhode Island, 65-79..	1360	115	207	236	296	341	469	595	3619
Rochester.....		1	2	5	6	1	5	1	21
Sears & Larrabee..		7	50	81	82				219
Smith.....		8	28	37	31	16	16	5	141
St. Louis, 85-6.....	369	40	92	95	105	113	80	64	958
Townsend & Co....	1	12	69	55	40	44	15	8	244
United States, 80-90..	6198	18512	151000	15708	14527	15306	16794	19768	166196
Vermont, 59-81.....	2214	327	377	323	457	699	1076	2132	7605
Zürich, 48-51.....	991	27	69	104	169	322	321	279	2482
Totals	85625	9906	17686	18291	19291	20782	23298	30763	225642
Percentages.....	37.9	4.4	7.8	8 1	8 6	9.2	10.3	13.7	100.0

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

frequently; from 30 to 50, somewhat oftener; subsequently with diminishing frequency. On the contrary, if its prevalence is estimated by comparing the deaths caused by pneumonia with the number of persons living at various age periods it will be found that in early childhood its mortality prevalence is moderate; from 10 to 20 years, it sinks to its lowest level; from 20 to 50, it gradually but moderately advances; beyond this it rises with great rapidity, and is greatest in old age. These facts are clearly shown in the accompanying table.

The apparent inconsistencies shown by these tables may be explainable by a broad survey of the concomitant facts in the case; as, e. g., patients of different age periods do not seek admission to hospitals in equal proportions; consulting physicians do not see patients of various ages in fair proportion; the death rate varies at various periods, etc.

Children of any age may have pneumonia, but the recently-born infant is least liable to be affected; the liability increasing up to a certain illy defined period, to subsequently decline somewhat. The reason for this I shall endeavor to give later.

It is proper for me to state at this time that I acknowledge the infrequent occurrence of pulmonary inflammations from various bacteria, but pneumonia is due only to the pneumococcus. In this connection some pertinent facts pertaining to this germ require consideration: The pneumococcus is present in the upper respiratory passages of a very large proportion—probably 50 per cent.—of healthy persons. It is disseminated by being thrown into the air by coughing and sneezing and by the dust from dried and pulverized contaminated sputum from infected, but not necessarily pneumonic, individuals. As long as the pneumococcus remains in this locality it is usually innocent. If, however, it finds its way into the pulmonary alveoli pneumonia will probably result; if it finds its way into the blood and grows, pneumococcemia follows. The pneumococcus is present in the blood in probably all cases of pneumonia. A child born of a pneumonic mother may be pneumococcemic, and may quickly become pneumonic. I have examined the throat secretions of several recently born infants, but have always found them free from pneumococci. Later when these germs find lodgment in the throat, nostrils, etc., they remain persistently, if not permanently. For example, in several hundred examinations, I have not failed to find the pneumococcus in every person who has once had pneumonia, no matter how long the period since the attack.

The child, once the throat becomes infected with the pneumococcus, is in constant danger of an attack of pneumonia. From this it is protected by the integrity of the sensitive and alert respiratory reflexes. Should these barriers fail, as, e. g., in the profound sleep which may follow exhaustion, or exposure to excessive cold, etc., particles of pneumococci-laden throat secretions may be aspirated into the bronchi, to finally lodge in the alveoli, with pneumonia as the result.

When the alveoli have once become infected, severe symptoms promptly follow in the great majority of cases. In the midst of health, or after a few hours of indisposition, the child awakens from sleep, possibly at an unusual hour, with considerable or high fever, often with vomiting, and evidently seriously ill.

The temperature quickly reaches a markedly higher level than is usual in adults; from 103 to 105 F. is the rule; above 105 is very common; rarely is it persistently under 103; irregular temperatures are very frequent. The pulse is rapid, rarely being under 130; usually ranging above 150; sometimes reaching 180 or 200; with exertion it may become almost uncountable. Respiration is increased in frequency, absolutely and especially in proportion to the pulse rate; rarely is it under 50; usually it ranges between 60 and 80; often it rises above 80, and may exceed 100. The normal pulse-respiration rate is reduced to 3:1, 2:1, or less.

Chill, which is so conspicuously the rule in adults, is absent in infants, and is infrequent in young children. Convulsions, of which we read so much, have been comparatively rare in my experience. They may have been more frequent a generation or two ago.

Pain is present and is manifested by indisposition to voluntary, and resentment to passive movements; by crying and featural expressions of pain, especially on being disturbed; by shallow breathing and an evident disposition to avoid nursing, and every exertion of movement which entails deep inspiration; by evidences of suffering on pressure being made on the abdomen or some portion of the chest. Cough is always present. It is usually short and evidently restrained; it is often heard only when the child is moved or fed, when it may be obscured by the cry, resentment and other evidences of accompanying pain; it is often so inconspicuous as to remain unnoticed by the attendants until attention is directed to it by the physician; it may be a very prominent feature. The well-known expiratory grunt is usually present.

The pneumonic infant usually persistently refuses food, and drinks only at long intervals and with evident reluctance. This is probably due to a disinclination to be moved, to the pain and distress caused by the deeper breathing required in nursing, and to anorexia. Gastrointestinal disturbances are the rule. Intestinal distention may accompany a profound benumbing of the reflexes, and when followed by diarrhea is of ominous import. At the height of the attack the urine frequently contains albumin, hyaline and granular casts; sometimes red corpuscles; rarely hemoglobin.

The blood contains pneumococci; the serum becomes gradually more and more heavily laden with toxins, including agglutinins; leucocytosis occurs early in the vast majority of cases and continues well into convalescence, the increase being in the polynuclears.

The physical signs of pneumonia are present and discoverable, at some stage, in practically all cases. They may be late in appearing; extraordinary care and skill may be required for their detection; they may be found in unexpected localities. Diminution in the respiratory sound within a circumscribed area, with crepitation, when the child breathes deeply, as with crying, is usually the first sign to be heard. Crepitant râles may be remarkably distinct and exquisitely typical, or they may be indistinct, moist, soft and decidedly atypical. Bronchial breathing may not be audible, because of the weakened respiration; it may be moist and low-pitched; it may be limited to a small area in the back, even when extensive consolidation is present; it may sometimes be heard far beyond the affected region, even to the opposite lung. Friction sounds are heard infrequently, because of their short duration in many cases and the great care required in their detection. Dullness on light percussion is present whenever the consolidated area is of any considerable size. If percussion should be too forcible the dullness will be obscured, or even tympanitic resonance, as, e. g., from vibrations arising

in a distended stomach or intestine may be obtained. In any case the dullness is more accurately described as diminished resonance. In cases with delay in the appearance of physical signs they oftenest first show themselves high up in the axilla, or between the scapula and the spine, and I have been forcibly impressed with the frequency in which they may be detected by careful examination in these localities in cases in which they were supposed to be absent. In my cases the right lung has been oftener affected than the left, although the preponderance has not been as pronounced as in adults. The consolidation is oftener basal than apical. It is usually clearly lobar. Sometimes it takes on a spreading form.

Nervous symptoms are rarely inconspicuous. The child is dull, drowsy and apathetic, but resenting movements and other disturbance. Delirium is rare. Spasmodic twitchings, which cause pain, are frequent. Rigidity of the neck is usually due to otitis media.

Surface pallor is the rule; a natural color is present in some cases; rarely is there a persistent flush of the cheeks; cyanosis, except as a fatal termination is approaching, is uncommon. Various erythemas may be present at some time during the attack. Herpes is infrequent, although I have seen some remarkable examples. Icterus may be present in some rare cases, but it is usually slight and of a dusky hue.

The course, type, severity and danger of an attack of infantile pneumonia will vary in various localities and at different times, depending on the natural or acquired virulence of the strain of infecting pneumococcus. These modifications are so multitudinous as to defy any short analysis.

The duration is somewhat shorter in infants and young children than in adults. Short, evanescent cases are not rare; a duration of somewhat less than a week is the rule; protracted cases may be due to the successive involvement of lobe after lobe, with a moderate interval between, or, and this is oftener the cause of the delay, to an unrecognized, but not unrecognizable, empyema. The attack usually terminates by a rapid decline of all the symptoms, the physical signs continuing longer, the so-called crisis; a gradual and more prolonged ending—lysis—is not rare.

Serious complications are more frequently encountered in pneumonia of the young than in adults. Of these empyema is the chief. Pleurisy is the rule, with plastic fibrinous exudate, which produces adhesions in healing. In these cases there may be more or less abundant effusion of serum, with greater or less admixture of leucocytes and fibrinous coagula. These effusions may fill loculi in the plastic exudate, to be finally absorbed, but protracting convalescence and delaying recovery. The effusion may rapidly reach large proportions, when, with but little invasion by leucocytes, we have the serous pleurisy, which is much less common in children than in adults. If, on the other hand, leucocytes are very abundant, empyema is the result, which is the usual form assumed at this period. Although these are generally extensive, they are yet limited by adhesions, so that in few, if any cases, is the entire pleural cavity filled with the purulent fluid. In these cases the fever declines, but does not disappear, at the time when convalescence usually takes place, to soon rise again, with an irregular curve. The pneumococcus is the organism present in these cases.

If allowed to pursue their natural course, the pus evacuates into a bronchus, or externally, with, after a prolonged and prevarious convalescence, complete or partial recovery, or the child is worn out and dies from exhaustion. Bearing in view the incidence of this complication, and the modifications of the ascultatory and percutory signs in children, these cases are usually recognizable. If in doubt, use the exploring exhaust needle without the slightest hesitation. As the result of sufficiently large experience, I desire to emphasize the importance of the facts here stated. It has been my observation that the great majority of cases of alleged "unresolved pneumonia" in children are, in fact, examples of empyema.

Otitis media, usually pneumococcic and purulent, is not rarely an important complication. It appears toward the end of or immediately after the pneumonic attack. One or both ears may be affected; rupture of the tympanic membrane is the rule; severe mastoiditis may occur; extension to the cerebral membranes or sinuses is rare. In these cases the mental dullness increases; pseudomeningeal symptoms may appear; rigidity of the neck is often, if not usually, present; tenderness is manifested when pressure is made on the lobe of the ear; recovery, without impairment of hearing, is the rule. Abscess, purulent pneumococcic pericarditis, peritonitis and arthritis are rare complications; ulcerative endocarditis and vascular thromboses are very rare.

The morbid anatomy of pneumonia in early life is modified by the structural and functional peculiarities appertaining to this period. The consolidation is clearly lobar, yet less prominently so than in the adult; it is also not so profound and the tissues are moister; the lobes are affected in a somewhat different proportion; resolution is more speedily completed.

Prognostically, pneumonia in the young is, at present, an unsolved problem. If conclusions are to be drawn from public health and institutional registration, it should be an exceedingly fatal affection; on the contrary, if we appeal to the results of our own clinical observations in private practice, especially of the better classes, I am of the opinion that this verdict must be revised and essentially modified; *id est*, that the fatality of pneumonia in the young is far below that of this malady in adults, and much less than is generally believed. In pneumonia at this period, as later, the changes of importance occur suddenly—the child gets better suddenly; gets worse suddenly; dies quickly and often unexpectedly; recovers promptly. Of the features of good import may be mentioned regularity of appearance and moderation of symptoms and course; absence of complications; slight or moderate virulency of the specific infecting germ. On the contrary, anomalous symptoms and erratic course; the appearance of serious complications; unusual virulency of the strain of pneumococcus, presage unusual or great danger. It is probable that recovery oftener follows an uncompromising assemblage of symptoms and conditions in the young than in those who are older.

The treatment of pneumonia may be faultlessly exemplary; it may be useless or harmless; it may be reprehensibly pernicious. The underlying principles of proper management may be stated, analyzed and formulated, but their application to meet the exigencies of the individual patient is an art which can not be transferred from one physician to another. In this field eminence in this art is attained only by those who have extraordinary native capacity, a broad foundation and keen perception of the pertinent facts and the advantages of long years of practice. Failure is usually due

to inherent incapacity, lack of necessary knowledge and restricted experience.

The fact that the pneumococcus in the blood and hepatized lung produce certain substances, which are as yet known only by their effects, e. g., the prompt occurrence of capillary dilatation and leucocytosis; later the appearance in the serum, within and without the blood vessels, of a specific agglutinin, and still later of a pneumococcic toxin, causing, within a short time, the disappearance from the blood of the pneumococcus, has led to the expectation that an antipneumonic serum would be produced which would promptly and directly cure the disease, but this has not been realized, although hope for the future remains.

Recently there have been made, by Drs. Welch and Rugh, in my wards some elaborate experiments, the objects of which were to demonstrate, if possible, the dynamic, not necessarily the curative, effects of the antipneumonic serums which are on the market. These observations are yet in progress and the facts have not yet been fully analyzed, but sufficient evidence has been obtained to warrant the conclusion that the effects are neither striking nor apparently important. The agglutinin is not noticeably increased; leucocytosis remains unaltered; the urinary chlorids are increased; the blood pressure is slightly augmented.

With our present knowledge it may be asserted that we have no specific for pneumonia; no agent which will certainly destroy the infecting organism nor render inert its toxins. However, there are certain prophylactic and remedial measures which are aimed directly at these points. For example: Keeping the pneumococcus-free child out of range of the infecting germ; avoiding exhaustion and too profound sleep in the pneumococcus-harboring child; cleansing the fluids of the body, intravascular and extravascular, of soluble toxins, in the pneumonic patient.

From the beginning the pneumonic child should be given liquids to drink as freely as they can be taken; in addition normal salt solution, modified possibly by the addition of coffee or other medicament, should be administered per rectum in such quantity and frequency as can be received, retained and absorbed. The presumption is that by these means the toxins in the blood and extravascular serosity is largely washed out, and that those which remain are greatly diluted. Theoretically, these devices should be useful; experimentally, we have no proof of their value; practically, I employ and advise them.

Beginning early, it is my practice to give moderate or large doses of a reliable tincture of digitalis, with the enemata if they are retained. Other vasomotor tonics and stimulants, e. g., caffein, adrenalin, etc., may be used.

If these little pneumonics have high fever, much dullness or restlessness, they are apparently made more comfortable, rational and normal by systematic sponge bathing. Personally, I prefer tepid sponging, followed by alcohol, repeated as often as required. This failing in its object, guaiacol, in suitable dosage, may be applied to the thin skin of the flexures as an efficient substitute. These may be advantageously supplemented by the ice-cap applied at intervals.

Oxygen inhalations are clearly useful when the patient is not fretted by their use. Strychnia, aromatic spirits of ammonia, etc., may be employed as required. In cases of profound nervous failure, with apathy, surface pallor, abdominal distension, the little patient may sometimes be aroused by a stimulating glycerinated enema.

The medical attention and nursing should be assiduous and of the highest quality. The child should be disturbed as little as possible compatible with necessary attention. The purest, freshest and most comportable air obtainable should be supplied.

Complications should receive prompt and careful attention, and in those requiring it (especially empyema) surgical relief should be given promptly.

DISCUSSION.

DR. A. C. COTTON, Chicago, endorsed Dr. Wells' therapy in supplying salines. He thinks the time has come when clinically as well as theoretically we can appreciate the importance of maintaining the alkalinity of body fluids, especially in a disease like pneumonia with high temperature and intoxication. This should be done either by enteroclysis, normal salt solution, sodium bichlorid, or if necessary by hypodermoclysis of normal salt solution. If absolutely necessary, intravenous transfusion may be employed. Dr. Cotton considers this a point that will bear a great deal of emphasis and one which is too often neglected.

DR. WILLIAM J. BUTLER, Chicago, said that pneumonia may be either of the lobar or lobular type. The diagnosis of lobar pneumonia in infancy, he thinks, can not be regarded as difficult, though it is usually so considered. Too frequently overlooking a pneumonia is the result of failure to examine the patient. The clinical picture of lobar pneumonia in an infant is quite as typical as it is in the adult. The physical signs are likewise typical for the child. He called attention to one point especially important among the physical signs in infancy: The diminution in the respiratory murmur over the affected area, especially noticeable in the first twenty-four or forty-eight hours. This is frequently the only early physical sign that is evident. Associated with it, however, there usually is a varying grade of diminished resonance sometimes quite marked, even within the first twenty-four hours. Râles are not so frequently heard early in the infant, as they are at a later period of childhood or in adult life; in fact, they are infrequent. The diminished respiratory murmur, sometimes almost complete absence of it, with diminished percussion resonance, are the most conspicuous signs of beginning pneumonia in infants.

DR. BUTLER thinks that rigidity of the neck in pneumonia can hardly be associated with middle ear disease, because it is a noticeable fact that in pneumonias during certain epidemics meningeal symptoms will sometimes predominate the whole clinical picture. In such cases middle ear disease may not be a noticeable factor. Middle ear disease does not manifest itself by opisthotonos in the young. He thinks, therefore, that physicians should continue to style this a pseudo-meningeal symptom.

DR. T. L. RILEY, New York City, has found that with the stethoscope modeled on the plan of the phonendoscope, in many of the so-called pneumonias in children, a diagnosis can be made twenty-four hours earlier than with the ordinary stethoscope. In lobar pneumonia in a child he does not think the mortality is more than 3 or 4 per cent. The pneumonia is not usually a true lobar pneumonia, but resembles catarrhal pneumonia. He thinks that it is customary to give up the old-fashioned poultices, but children generally find a great deal of comfort in these hot applications. Children and old people will generally tell you that they get more relief from these than from the use of an anodyne. The physician who loses the most pneumonia patients is the one who does not see his patients frequently.

DR. ARTHUR W. FAIRBANKS, Boston asked Dr. Wells to what he attributes the extreme fetor sometimes seen in these cases. This is sometimes so extreme that it is scarcely possible to stay in the room with comfort and sometimes continues for two weeks. In some of these cases the temperature lasts several weeks, and there is some uncertainty in his mind whether they should be diagnosed as cases of possible pulmonary abscess.

DR. JOHN LOVETT MORSE, Boston, declared that in the

young it is very important to differentiate between pneumonia in the infant and pneumonia in the child. Pneumonia in infancy is an extremely fatal disease, while in childhood it is a very mild one. He considers the pulse-respiration ratio the most important point in the diagnosis of pneumonia in infancy before the development of physical signs. When, in an infant, the rate of respiration is increased out of proportion to the rate of the pulse in an acute disease with a sudden onset and a high temperature, it is almost certainly indicative of pneumonia. In his experience, children with otitis media complicating pneumonia do not show symptoms pointing directly to the ear. The onset of trouble in the ear is more often shown by a rise in the temperature or else the child merely seems worse. Another point, he said, is the frequency with which the symptoms of pneumonia are referred by the child to the abdomen, or away from the lungs. Dr. Morse thinks that Dr. Wells did not emphasize sufficiently the importance of fresh air in the treatment. Dr. Morse put that first. If the patient has fresh air oxygen will rarely be needed. Dr. Morse does not use poultices except for relief of pain. It has been proved that heat and cold externally have no effect on the temperature or circulation in the pleural cavity. The recent work which has been done in France and in this country on the effect of chlorid of sodium when introduced into the system must be borne in mind. Physicians may be taking chances in giving large amounts of salt solution, as its action may be harmful instead of beneficial. Moreover, the heart is already under great strain and is bearing the brunt of the battle. Throwing a lot of fluid into the circulation makes the heart's work harder instead of relieving it.

DR. A. C. COTTON, Chicago, said that when the right heart becomes overburdened, when dullness extends beyond the right sternal border two fingers' breadth in the fourth interspace, he believes it is time to extract a little blood from the circulation. This may be easily done by leeching, an old-fashioned procedure too frequently neglected. Relief for thirty-six or forty-eight hours may be secured by the application of from three to four leeches, in a child of 2 years, placed over the right hypochondria, and this procedure may be repeated at the end of forty-eight hours if necessary. Dr. Cotton said that he fully appreciates what has been said concerning the overloading of the heart with water, but he believes that the salines should be used by enteroclysis or by hypodermoclysis to meet the waste of alkalinity in the fluids.

DR. EDWARD F. WELLS, in reply to some remarks, said that in his opinion increasing the alkalinity of the blood in pneumonia is a procedure which may be useful, detrimental or innocuous. He has noted carefully the work which has been done along this line, and is sure that it is in the early stages of investigation, and that we have not sufficient facts before us at the present time to say whether or not we should increase, if possible, the alkalinity of the blood. It is well known that the pneumococcus grows most luxuriantly in an alkaline fluid, and that it produces an acid in its growth. Whether that acid should be neutralized or not is an open question. He intentionally omitted any mention of methods of treatment which are in this investigational period. In regard to increasing the sodium chlorid in the system, he said that this is another question which is in its investigational period. He believes, however, that inferentially it may be considered useful. One of the first and most important symptoms of pneumonia is the decline, as a rule almost to absence, of chlorids in the urine. This is more noticeable in the adult than in the infant, because of the naturally small proportion of chlorids in the urine in the latter. We may infer that this diminution of chlorids in the urine is because of the advantage that their retention might be in neutralizing toxins, or in some way acting as a defense to the system. He is in the habit of giving chlorids as freely as possible, but he does not advocate their intravenous injection. If the solution can not be borne by the stomach or rectum it can be introduced under the skin. He is familiar with the experimental work done in introducing chlorids in large quantities, and the alleged danger of producing edema thereby, yet he has no hesitation in pursuing the practice mentioned. In reply to Dr. Morse's criticism anent fresh air, Dr. Wells stated that he had emphasized the point as much as possible in stating that an abundance of comfortable pure air is of the highest importance. He said that he is not aware that there are any facts before us which can lead us for a moment to believe that uncomfortable air—overheated or overcooled—is more pure, more wholesome or more beneficial to the patient than that mentioned. He said that he wished to emphasize this point as much as he could, as he feels keenly on the subject. In reply to a question he stated that there is not sufficient evidence on which to base an opinion in regard to fetor of the breath. In some cases it is due to the fact that the child does not breathe through the nostrils. The mouth remains open and the secretions in the throat and nose become fetid. In Dr. Wells' experience the majority of cases in which there was rigidity of the neck were accompanied by otitis media, but in otitis media the neck is not uniformly rigid. Rigidity of the neck in his experience has been found most frequently in connection with otitis media. He thinks Dr. Riley's prognosis is too favorable and that his mortality is placed at too low a figure. Dr. Wells believes that what he has said about prognosis of pneumonia in the child, and the facts noted in the statistical portion of his paper will answer this portion of the discussion fully.

SURGICAL ASPECTS OF DISTURBED DENTITION OF THE THIRD MOLARS.*

M. L. RHEIN, M.D., D.D.S.,
Lecturer on Dental Pathology, University of Pennsylvania.
NEW YORK CITY.

The third molars generally make their appearance between the ages of sixteen and twenty. The final development of the length of the maxillæ posterior to the mental foramen in the lower jaw and maxillary sinus in the upper, takes place during this period, and in this manner sufficient space is provided for the proper alignment of the third molar when it breaks through the gum tissue. When this development proceeds without any disturbing constitutional causes, no difficulties attend the eruption of these teeth. As, however, all inflammatory actions that arise during this period either from local pathologic causes or by virtue of constitutional disturbances, have a marked effect on the osseous development of these parts we find the normal type of development to be the exception. These departures from a purely normal type vary greatly according to the amount of disturbance that has taken place, and in a large number of cases interfere with the normal eruption of the third molars. This interference with the eruption of these teeth is confined more particularly to the lower jaw. The reason for the lower third molar being exceptionally liable to serious disturbances is due to the difference in the anatomy of the two jaws. On account of the limitations of time and small percentage of troubles encountered with erupting upper molars, these remarks will be confined strictly to the inferior teeth.

The necessity for sufficient room at the angle of the body and the ramus is shown in Fig. 1 (Crver). Fig. A shows the mandible of one of the Fan tribe of West Africa, and there is abundance of room for the third molar. Fig. B is a picture of a Caucasian lower jaw of normal type where there is just barely sufficient room for the third molar. The lessening of this amount of space is one of the most prolific sources of disturbed dentition in this locality. Too frequently there is no room left between the second molar and the ramus, and as a result the third molar finally erupts in some unusual position. During this effort at unnatural erup-

* Read in the Section on Stomatology of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

tion, grave disturbances are very liable to occur. The close proximity of the cribriform tube (Fig. 2, Cryer) to the roots of the third molar, is another anatomic feature which has a marked bearing on the etiology of

Fig. 1 A. (Cryer).—Mandible of a member of the Fan tribe, West Africa, showing abundance of room for third molar.*

disturbances in this region. In many anatomic specimens the incompleted roots can be seen penetrating the canal itself. The cribriform tube or inferior dental canal (Fig. 3, Cryer) furnishes a pathway of a light resistance to infection, and once involved leads to serious septic conditons. Another marked pathologic condition that results from the close proximity to the inferior dental nerve is that the irritation of this nerve is very likely to produce a stimulation in nutritional supply at this point, so that the normal cancellated bone (Fig. 4, Cryer) through which the erupting tooth can readily force its way, is replaced by the hardest of osseous structure which attempts to force the tooth aside to seek some easy but unnatural mode of eruption. This excitation of bony development sometimes proceeds to such extremes as to encapsulate the tooth in a dense bony cyst in which it becomes impacted (Fig. 5, Cryer). The study of this condition will not be considered at this time, but it is merely mentioned as a possible result where this undue eruption proceeds to its extreme limit.

The unnatural increase in osteoblasts with all the attending inflammatory conditions, produces a marked

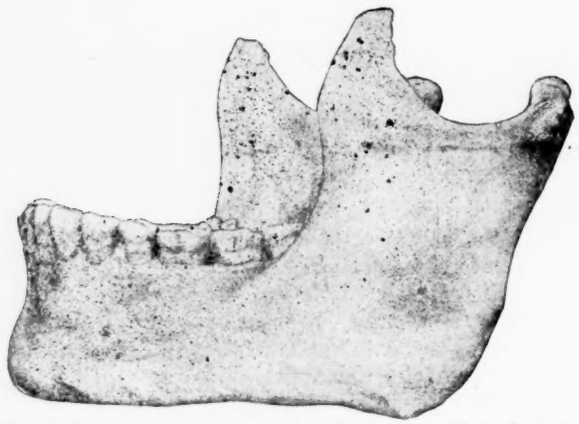

Fig. 1 B. (Cryer).—A Caucasian lower jaw of modern type, with barely sufficient room for third molar.

effect on all the surrounding tissue. The resistance is depressed in proportion to the degree of irritation and this is also further influenced by any disturbances of the general system. When this decreased resistance has reached a certain stage, the parts become an easy prey to infection. In this way, we find the eruption of the third molar which should be a natural physiologic action, complicated by more or less severe pathologic disturbances.

Another etiologic factor that sometimes plays an important rôle in depressing the local vitality, is found in mouths where on occlusion the two jaws come so close together that traumata of the gums over the erupting tooth are constantly taking place, caused by the upper teeth constantly biting the gum tissue over the erupting tooth, and infection frequently ensues.

Another marked point of irritation is found in such mouths where on account of lack of space between the second molar and the ramus, the third molar is pushed forward, and its eruption is impeded by coming in contact with the distal side of the second molar. Frequently, only the slightest impingement on the territory of the second molar will start up an inflammatory action, and the parts become rapidly infected.

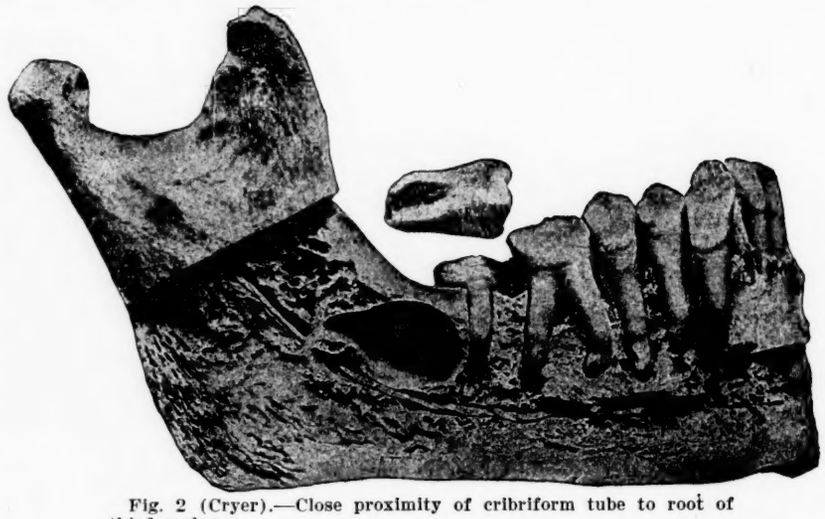

Fig. 2 (Cryer).—Close proximity of cribriform tube to root of third molar.

Since 1828, when Toirac gave the first accurate description of this disturbance, French and German authorities have written extensively on this subject. In 1878 Heydenreich reviewed the list of writers on this subject up to that date. According to Magitot (1879) and David, complications ensue in the eruption of 75 per cent. of third lower molars. Some very unique etiologic theories are advanced by some of these authorities. Moty,[1] in 1901, tried to show an analogy between suppurating dermoid cysts and infections of erupting third molars. He found the cause at the end of the root, and speaks of it as an "epithelial inclusion," and it will be instructive to quote from him. He says:

> In our opinion, these phlegmons are due entirely to a collection of epithelial cells enclosed at the bottom of the alveolus. This enclosed epithelium is found as a fungous mass which has gradually infiltrated the wall of the alveolus without enlarging the latter. In some cases, this neoplastic tissue becomes encysted. In nearly all cases these epithelial inclusions cause abcesses at the time of eruption of the wisdom teeth or later on. Early extraction may be necessary on account of the pain even before suppuration has set in, but the latter invariably occurs in cases left to themselves. The cause

* The illustrations are taken from M. H. Cryer's book on "Internal Anatomy of the Face."

1. Moty: Accidents de la dent de sagesse Rev. de Chirurg., vol. 23, 1901, p. 617.

of this non-bacterial suppuration is due entirely to these cells acting as a foreign body.

Epithelial inclusions may be found with other teeth, but only rarely. It is very probable that the enamel body may leave an epithelial focus in the gums which may develop into a tooth (giving rise to a third dentition). These cases themselves are very rare, but grouped with other anomalies (single cusps, an additional cusp or round root added to a molar, large tooth, extra tooth not growing from the gums, etc.) make a large class. Abscesses associated with healthy wisdom teeth and commencing in the depth of the alveolus are sterile. The pus has no bad odor unless a secondary infection has supervened. An odor generally indicates a carious tooth.

If views such as these are correct, it upsets all our ideas of the pathogenic conditions at work in these cases. It is wise, however, to have our attention directed to the different views that are held on this subject, and I have quoted the latter one because it is remarkably well expressed.

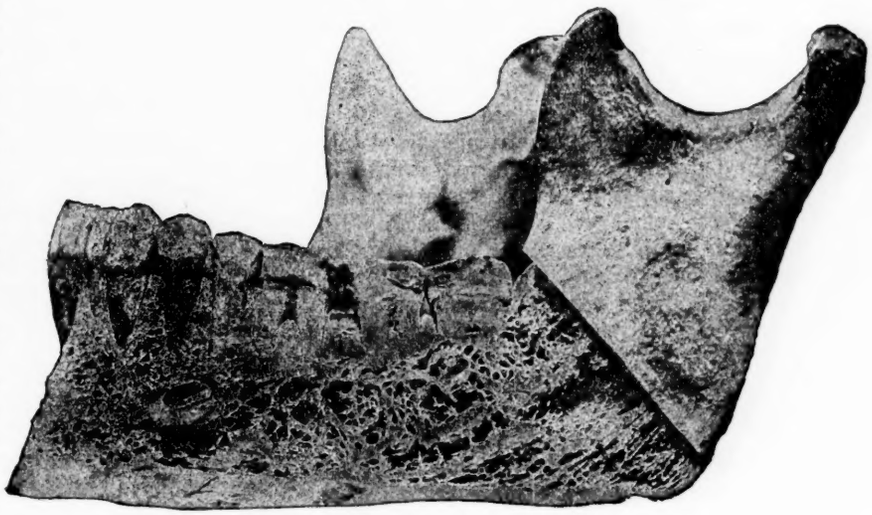

Fig. 4 (Cryer).—Normal cancellated bone.

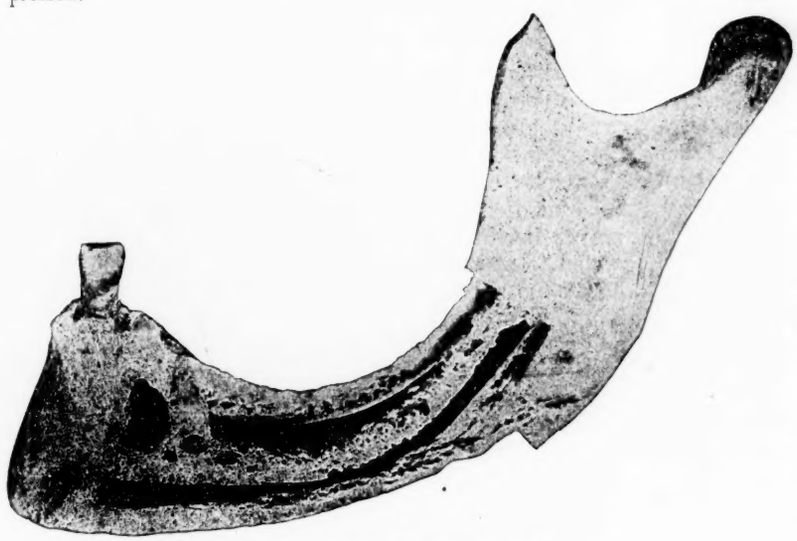

Fig. 3 (Cryer).—Showing cribriform tube.

Careful observation of clinical data impresses us with the view that there are many predisposing factors to be considered in the etiologic study of different cases.

For the sake of convenience, the subject can be considered in two divisions: First, disturbances which antedate the appearance of the tooth; second, those which take place after the partial eruption of the tooth. Symptoms in the early stages are not much more marked than in ordinary physiologic dentition. There is the usual amount of pain accompanied by congestion of the gums overlying the erupting tooth. The edema becomes more marked, rapidly progressing in every direction and involving the pillars of the fauces and the various glands in the mouth. Neuralgic pains radiate to the ear and eye, and as the submaxillary glands become involved, they extend to the neck, to the shoulders, and even to the arms. The patient finds it more and more difficult to open the mouth. As infection progresses, the pulse becomes more rapid, and temperature may rise even to 103 degrees. A careful digital examination over the gums will readily detect the presence of the tooth underneath. In some cases, the gum becomes attenuated and pale as in ordinary dentition; as a rule, however, this is not the case, but the opposite condition results, which is that of excessive congestion.

Prompt excision of the entire hood of gum tissue is at once called for. The resection of the gum should be so thorough as completely to expose the four sides of the tooth. Many authorities recommend the cautery for this purpose, but the knife is a more valuable adjunct, as the bloodletting itself is very beneficial. Every possible means should now be used to aid in the rapid eruption of the tooth, and the prevention of re-infection of the parts. Foreign writers all unite in a plea for extraction as the only radical cure in these cases. Whenever it becomes evident that the third molar, by reason of its irregular position and a lack of space in the jaw for its proper berth, can never become a use-

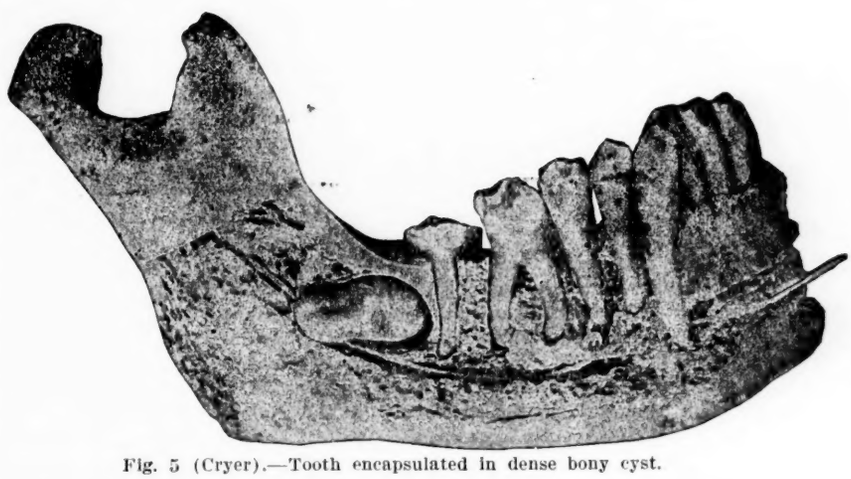

Fig. 5 (Cryer).—Tooth encapsulated in dense bony cyst.

ful organ, the earliest extraction of the tooth is called for.

On the other hand, in a large percentage of cases, the tooth can be brought into proper alignment and occlusion, and under such circumstances there is no valid excuse for its extraction. A strip of gauze should be packed between the gum and tooth around its entire circumference. In case of the second molar acting as an obstruction, this gauze will act to some extent as a wedge in making a proper place for the third molar. The gauze packing should be frequently changed. If possible, the mouth should be sprayed at intervals with a hot borated wash, which at any rate should be used by the patient frequently as a mouth lotion. The focus of infection in most cases under sufficiently energetic treatment will soon find an outlet either into the mouth or the fauces, and the symptoms will rapidly abate.

The trismus, paralysis and edema in these cases involve so much surrounding territory that they are frequently mistaken by the medical attendant for adenitis, stomatitis, pyorrhea, parotitis and diseases due to the condition of other teeth. An error in diagnosis in these cases generally means an error in treatment, and usually results in an unnecessary disfigurement of the face. The frequency of errors in diagnosis of these cases is one of the strongest pleas that can be made for the education of medical men in the principles of dentistry.

The following notes taken from a typical case will illustrate this fact:

Patient.—Miss A., between the age of 16 and 17, had been convalescing for two weeks from an attack of measles, when she commenced to have paroxysms of pain in the posterior portion of the mouth; this was accompanied by edema, and a steadily rising temperature.

History.—The physician who had attended her was sent for, and he made a diagnosis of adonitis of the submaxillary glands. The temperature twenty-four hours later had risen to 102.5 F., and her pulse was 120. Under his direction Credés ointment was liberally spread over the neck at the angle of the jaw, and this was covered by rubber tissue. The expectation of the attending physician was that the absorption of the silver salt would arrest the infective infiltration. The result, however, was that it acted as a poultice, and drew the inflammation and infection within the mouth to the outer tissues. Forty-eight hours after this treatment had been commenced, I was called to see the patient because the mother had a suspicion that the teeth might be involved; the patient having continuously complained of pain at the angle of the body and the ramus of the mandible.

Examination.—I found the patient suffering severely from neuralgic pains, with a great amount of edema, extending through the entire cervical region, and involving most of the hyoid muscles. A very careful external examination failed to discover any sign of any glandular enlargement, but simply an edema penetrating through all the tissues. On this account it was difficult for the patient to open her mouth, yet a careful digital examination over the mandible between the second molar and the ramus, readily distinguished the outlines of an erupting third molar.

Treatment.—The case being turned over to me, I at once dissected away the entire hood of gum tissue which was covering the erupting tooth, and found that the mesial approximal surface of the third molar was impinging slightly on the distal approximal contour of the second molar. Iodoform gauze was packed around the entire circumference of the tooth, especial attention being paid to the space between the second and third molar.

Result.—The temperature of the patient dropped immediately to 100.5, and the pulse to 100. Naturally, the ointment and rubber tissue were at once removed from the neck, and hot borinated mouth lavations were ordered every fifteen minutes with the hope of bringing the inflammatory action back again into the oral cavity. A blood count showed 20,000 leucocytes.

The patient was constantly under the care of a trained nurse, and for the following five days, the temperature varied between 99.8 and 101. At this time results of the treatment prevailed, and a purulent effusion made its escape from the tonsils. The packing of the gauze between the two molars was persisted in for about ten days, when sufficient space between the two teeth was obtained, and the third molar was finally erupted into a position of correct occlusion and alignment.

The most serious type of cases are those in which disturbances do not abate after partial eruption of the tooth has taken place. Writers frequently speak of the purulent troubles of third molars that exist even after eruption of the tooth has been completed, but careful anatomic examination will generally show that the eruption of the tooth has not been entirely completed, some obstacle being present which prevents the tooth coming out as it naturally would. This is the class of cases that Moty speaks of in which he classifies the cause as an "epithelial inclusion."

The undue osteoblastic stimulation that would result from the inflammatory action present in these cases, is sufficient to account for this condition which he so graphically describes as "epithelial inclusion," but which is nothing more than an over stimulation of peridental membrane, which, if persisted in, frequently leads to a complete ossification of the parts, and produces an impacted tooth.

In all these cases, every effort should be made in the line of proper orthodontia, so that if possible the tooth can be properly erupted and preserved. The value of the retention of the third molar in a mandible large enough to contain it, should never be overlooked. If, however, it is found impossible to bring the tooth to its proper height and alignment, extraction should be resorted to at the very earliest moment. In such cases it makes no difference how difficult it is to extract the tooth, if necessary deep narcosis must be resorted to, and a portion of the mandible cut away so as to remove every portion of the tooth. The longer there is any delay in such cases, the greater is the danger of severe neuralgic complications and infiltrative osteomyelitis through the inferior dental canal. For this same reason, if extraction of such a tooth has taken place, the greatest care should be taken to keep the wound packed with sterile gauze in order to avoid re-infection which may lead by means of the cribriform tube, to an extensive osteomyelitis. The same rule obtains in cases of abscessed or necrotic conditions in which there is any danger of re-infection and especially where the field of operation is in close proximity to any of the osseous sinuses. This does not necessarily include healthy alveolar sockets in other parts of the jaws.

The following clinical case will illustrate the danger resulting from neglecting to attend to the sterilization of such a socket:

Patient.—Mr. S., bachelor, aged about 30, had a third molar extracted which had never completely erupted, but had been a constant source of irritation for many years. The extraction was performed by a specialist in this line, and was said to have been a very difficult one. The later surgical operation demonstrated definitely that the roots of the third molar penetrated the cribriform tube as shown in Figure 2. (Cryer). Inadequate attention to keeping the wound sterile (no packing having been used) was followed by an infection in the alveolar sockets. This spread without any difficulty to the inferior dental canal, and when I saw the patient for the first time in the hospital on July 3, 1900, in consultation with Dr. Howard Lilienthal, he was not far from a moribund state. There was a very rapid and weak pulse, with temperature of 105.5 F.

Diagnosis.—An infiltrative osteomyelitis progressing through the passageway of the cribriform tube.

Treatment.—The patient was immediately anesthetized, and an external incision made at the angle of the body and the ramus. The bone was chiseled away at this point until the interior of the tube was exposed, when there was an effusion of a large mass of purulent matter, grayish in color, and of most foul odor. The condition of the patient at this time was so serious that the operation was made as short and performed as rapidly as possible, great fear being entertained that he would not survive the ordinary surgical shock. Drainage was established through the external opening thus obtained, and the recovery was very slow. It soon became evident that an entire infected zone of bone had not been removed, and on October 27, a subperiosteal resection was performed, extending from the symphysis of the body to a considerable portion of the ascending ramus. After this, the case went on to complete recovery.

Figures 3 and 4, taken from Cryer, will illustrate most beautifully the parts operated on. The prognosis in such cases is remarkably good, as long as correct surgical principles are used in the operative procedure.

SUMMARY.

It would appear that the medical profession are sometimes remiss in their failure to call on stomatologists for consultation in obscure cases of infection in the oral regions. Errors of diagnosis have been the cause of numerous cases of unnecessary facial disfigurement.

On the other hand, stomatologists should realize the value of retaining all the molars if possible. When extraction has to be resorted to, too much and too harsh a criticism can not be used against those practitioners of this specialty who are negligent in taking proper precautions against infection of wounds in this locality.

38 East Sixty-first Street.

DISCUSSION.

DR. EUGENE TALBOT, Chicago, said that the line of research work which he has carried on in the last five years is based on the law of economy of growth, i. e., a structure is lost for the benefit of the organs as a whole. Later this law was modified and called the "use and disuse of structures." The appendix, pineal body, etc., are examples of these changes in the evolution of man. In the development of the brain certain structures must pass, and the face, jaws and teeth will suffer. The law of evolution is so fixed that there is no pathologic condition about the face, jaws and teeth but comes under it. This change has been going on ever since the world began and is still continuing. The use of specially prepared flour and coarse foods will not benefit the teeth. If methods of living could be changed from generation to generation, possibly with the mixture of races, in a thousand or more years the jaws might develop and the teeth become dense in structure, but this evolution is going on and a man who has thirty-two well-developed teeth to-day in perfect condition is an atavism. As advance in evolution proceeds degenerates are going to develop faster. Decay of the teeth is increasing and will never be stopped by our present methods.

DR. M. I. SCHAMBERG, Philadelphia, stated that these retrograde changes are going on all the time, and impacted teeth are becoming more prevalent. There is scarcely a week that he does not see wisdom teeth in a marked degree of impaction. Dr. Schamberg did not altogether agree with the authority quoted by Dr. Rhein. He describes the impaction which takes place around the wisdom teeth as due to non-septic pus. Dr. Schamberg knows of no such condition. He believes that the non-septic cyst which is often found at the end of the teeth is frequently mistaken for an abscess. It does not become an abscess until there is bacterial infection. The same is true of these cases of delayed eruption of wisdom teeth, in which there may be serum formed, but the infection spread through the maxillary region is not due to serum, but takes place only after bacterial infection. Often the angle of the jaw comes off so close that a portion of the gum is forced over the tooth, and food may be forced under this, forming a pocket of infection. In teeth erupting in improper positions there is great danger in endeavoring to straighten them by pressing backward on the inferior dental canal.

DR. F. L. PLATT, San Francisco, said he thinks there are circumstances in which the third molar may be saved to advantage, but in the majority of cases, unless they are desired for the support of bridge work, or partial dentines, the lower third molars would better be extracted. Very few people clean their teeth properly, the vast majority never reaching the third molar. In many cases Dr. Platt has found molars that were exceedingly dirty in mouths otherwise well cared for. The soft tissue comes down close behind the third molar, the buccal tissues overlap it, and it is frequently the seat of infection and decay, and this leads to decay of the distal surface of the second molar tooth. Unless there is plenty of room for the lower third molars, and unless they occlude properly, it is the best practice to extract them. They are of no benefit to the patient, therefore can be no loss, and many good second molars in this way might be saved.

DR. J. S. MARSHAL, San Francisco, said that of course dentists all realize the result of present civilization has been to increase the size of the brain and to shorten the jaw, and to produce more or less crowding of the teeth, and that we are expecting as a result that the third molar will finally disappear, but he is not sure that this can be considered a process of evolution. He is inclined to think that these conditions are more the result of intermixture of races and nations. He had an opportunity a few years ago to examine some skulls of ancient Britons, Romans, Saxons and Danes. With very few exceptions he found no malformation so far as arrangement of the teeth was concerned, but a few centuries later the skulls of English people (made up from the intermixture of the above races), show many irregularities in the alignment of the teeth; the jaws are shorter, there is crowding of the teeth, so that the third molar is out of position or suppressed. He believes that after a few thousand years these things will adjust themselves, and teeth will return to a normal type. He does not believe that as a race we are eventually going to lose our teeth. He thinks Nature will correct these conditions. The composite photograph of the head and face of the American college girl will be the perfected type, and Dr. Marshal believes we are gradually coming to this. When this condition is brought about there will be perfect harmony in the relations of brain, jaws and teeth.

DR. G. V. I. BROWN, Milwaukee, agreed with Dr. Rhein in making an effort to save the third molars. He believes that is a part of our work. Obviously the only way to prevent this difficulty with the third molar is to begin with the individuals before the time of eruption and make room. Dentists must do artificially what Nature fails to do. Whether we are going to have teeth a generation or two from now is interesting in the abstract, but does not cut any special figure in our practices. The trouble with the third molar in most instances is that it wants more room. If we can provide this the proper eruption of the tooth will become a much less serious question. Most dentists, and particularly those who extract without proper care and appliances, and without reasonable possibility of anything like asepsis, go into one of the most critical regions without due preparation. One difficulty in taking proper precautions is that patients think dentists magnify the seriousness of the condition. If all dentists would be rigid about this it would make it easier.

DR. M. L. RHEIN said that Dr. Schamberg fell into error in imagining that he was supporting the views of Dr. Moty of Paris. Dr. Rhein quoted from Moty because he is under the impression Moty is a French authority, and he stated in his paper that if these views were correct dentists would have to change their ideas on this subject. Many European writers agree with Dr. Schamberg in not trying to save the third molars. Dr. Rhein does not want the impression to go out that he is saving all these third molars. As soon as it is evident that the third molar can not be brought to correct occlusion and alignment, extraction should be performed. It is the tendency of the teeth later in life, when approaching senility, to move backward, and the third molar when in position is a sort of back-stop to the second molar, and consequently to the

other teeth. It becomes a question of the view of the practitioner in every case. He should know when to extract and when to try to save. Dr. Rhein's practice is distinctly a family one and unless his patients are willing to abide by his decision he will not treat them. If they will not keep their mouths in a hygienically clean condition he does not waste his services. Patients are largely what dentists make them, and if the dentist can not train them properly we should not take charge of them.

CHOLERA AND INFECTED WATERS.*

CHARLES E. WOODRUFF, M.D.
Major and Surgeon U. S. Army.
PLATTSBURG BARRACKS, N. Y.

The experience gained by the American military surgeons during the Philippine cholera epidemic of 1902 and 1903 has enabled them to correct a few errors in the current theories as to the methods of the spread of this dreadfully fatal disease. From their knowledge of the biologic characters of the spirillum, they were forced into an investigation, first, of the manner in which the living germ was transported into uninfected territory, and, second, of the manner in which it was carried from patient to patient after it was planted in this new territory. The spirillum is a very frail organism, which leads practically a parasitic existence, for it soon perishes outside of the host. Experimentally, it has been determined that it is killed in five minutes by a temperature of 80 C., in two hours by drying, and more quickly still if dried in the sunlight. Hence, as an invariable rule, the living moist germ is carried from place to place either in an infected host or as a culture on moist foods.

It would, then, apparently be a simple matter to trace up the channel of infection, yet all the investigations were hampered by the remarkable difficulty of eliciting truthful information from the patient. It was first supposed that this was merely the characteristic of the Malay, who is notorious for the skill he possesses in evading the truth in his remarks on any topic when he imagines that the truth will react against him. It was found that in American sufferers also it was an extremely difficult matter to get them to confess where they had been eating or drinking. They may have been ashamed to confess that they had been so foolish as to violate sanitary regulations deliberately, but it was doubtless due, in great part if not entirely, to the interruption of the cerebral circulation, which made clear thinking impossible. It is not true that the patients are clear-headed in the throes of this disease, as so often reported.

Investigators, therefore, were compelled to resort to indirect evidence as to sources of infection and methods of spread. Almost invariably it was found that the first case in a new territory was a newcomer who had been infected elsewhere and who showed symptoms very shortly after his arrival. The short period of incubation made this evidence stand out with startling clearness. It is but a few hours after swallowing the germ that symptoms appear, and frequently patients were dead less than twenty-four hours after infection. The shortest case is said to have been ten hours from infection to the first symptoms. Hence, the traveler who brings the infection into a new neighborhood is usually desperately sick on arrival, and a patient is known to have died fifteen minutes after he left a railroad car in which he had been travelling but an hour and a half.

We can safely say that practically the only way the infection is carried into a new territory is by infected travelers, for the other methods are so rare as to be mere curiosities. Yet foods are now and then the vehicle; for instance, in one town the first eighty cases were directly traced to a fiesta or banquet in which the food was supplied by a native caterer. He cooked the material in Manila, where it was undoubtedly infected, and then smuggled it into the distant town. It proved to be a splendid culture medium, so that when served it was no doubt swarming with spirilla. The cook himself died shortly after arrival and was probably infected from the same source which infected the food.

Curiously enough, it was probably by this rare method that cholera was introduced into the Philippine Islands from China, where the disease had been epidemic a long time. In the Orient, where intensive cultivation is carried to an extreme, human feces and urine are carefully collected and sold to the farmer as fertilizers. They are mixed with water and then sprinkled by watering pots on the leaves, so that a garden in China or Japan is a most foul smelling landscape to which distance lends enchantment. The result is evident. If there is cholera, typhoid, dysentery or any similar infectious disease in the community, the bacteria are deposited in the cracks and crevices of the leaves of cabbages, celery, lettuce and such vegetables, and if they are eaten uncooked the disease is spread broadcast. Hence, in the Orient sensible people always eat their vegetables cooked, but it is to be confessed that a stroll through a Japanese garden generally destroys all desire for oriental vegetables in any shape. Boiled feces may be harmless, but they are not an esthetic condiment.

For these reasons the quarantine authorities in Manila forbade the importation of vegetables or any moist foods from cholera-infected ports, but one ship captain is said to have disobeyed orders and thrown Chinese vegetables overboard. They are reported to have been picked up on shore. What we certainly know is, that along this shore the first cases occurred in an epidemic which destroyed lives estimated variously at from 150,000 to a half million.

Though infected water is the chief means of spreading the disease locally from man to man in an infected territory, it is so rarely the means of carrying the disease into an uninfected area that it can be dismissed. I do not know of a single instance in the large area from which I received reports. Of course it is possible, as where boats take infected water into their tanks and spread the disease at the terminal port, but in that case there is sure to be an extensive epidemic on the boat, which will lead to prompt measures. This is due to the fact that the vibrio perishes in so short a time outside of the host. Experimentally, it has been shown to die in distilled water in 24 hours, in water of canals in one to four days—Koch says in 36 hours. In sterilized milk it lives 10 days; in unsterilized milk, 1 to 2 days; in decoction of tea, 1/200, 8 days; in coffee, 2 hours; beer, 3 hours; acid wine, ¼ hour.

The subject of the prevention of the spread of the infection into a clean territory is foreign to this paper, but it is appropriate to remark that, theoretically, it seems a very simple matter. If a quarantine can be organized on sufficiently rigid lines, so as to stop every traveler at the point of destination for five days, every infected person could be discovered and his discharges

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

disinfected until he recovers. Unfortunately, the spirilla remain in a convalescent many weeks or even months —they have been found seven weeks after all symptoms had disappeared. To keep him under control, then, is not as simple as it appears. Long after he is apparently well he may be a dangerous source of infection and nothing is safe except returning him to the territory whence he came. The quarantine itself is not always practicable, because it is easy to break through the lines, and this happened so often as to raise a suspicion that it was a useless bother and expense. Indeed, there are some who claim that as a land quarantine is sure to be inefficient and the infection spread in spite of our efforts, it is not wise to attempt any restrictive measures of the sort. This is rather fallacious reasoning and if we apply it to all human endeavors we would never attempt anything, for our efforts are rarely wholly successful. A quarantine does restrict the spread of cholera and to that extent it is an essential measure, for it lessens the number of new foci and restricts the number of deaths while we are waiting for the spirillum to lose its vitality, and this is a matter of only a few months. A marine quarantine is, of course, an entirely different matter and can be more efficient except in the matter of the retention of convalescents in the long period in which they can spread the infection.

It is certain that if on the discovery of the first cases in Manila that part of the city had been surrounded with guards, with orders to shoot any one escaping, and this severe quarantine had been continued for two months after the last case, the subsequent epidemic in the Philippines would have been prevented, but it is also evident that such measures would never be tolerated by public sentiment.

Commerce in dried merchandise need not be interrupted in the least, but moist foods from an infected territory must, of course, be wholly excluded. Particularly in the Orient is this necessary, where, as before explained, the farmers are so filthy. The outcry against quarantine invariably raised by commercial bodies interferes with its efficiency. Indeed, there is much to be said on the side of the merchants. Interference with trade is a very serious matter and may in the end cause poverty, privation, sickness and eventually lay the foundation for more deaths than the unrestricted spread of the cholera. Oriental communities are dreadfully overcrowded, and a large death rate is normal and necessary. Many must die, for the food supply is always short, and there is much to be said in favor of the present attitude of the British sanitarians in India who have in sheer hopelessness given up the task of preventing the spread of plague and such epidemics and are allowing the natives to kill themselves in the way which pleases them most. It seems brutal, but a careful investigation of the whole question generally convinces one that in dealing with Orientals *laisse faire* is more often the best motto than we are willing to confess.

We now come to the most important side of cholera—its spread from man to man, after the spirillum has been introduced into a new territory. Here we have very definite data and we can lay down an invariable law, that without an infection of the water supply an extensive epidemic is impossible. Sporadic cases can occur in a city from infected foods and there may be little local outbursts here and there, as where a well has been infected, but unless the spirillum enters the water supplied to a great population, that population is comparatively safe. The first thing done in Manila was to guard the water supply by military forces, and to this wise measure we can surely attribute the salvation of that city from a terrible disaster.

To be sure, Manila had some thousands of cases, a few no doubt due to wells here and there into which surface discharges drained, but the vast majority were due to the extremely filthy habits of the people in their food supplies. It is said that there are 50,000 people in that city who feed from the little restaurants which exist by hundreds and sell various kinds of soups, stews and other cooked foods. A prospective purchaser will run her hands into the mixture and if it does not suit her will pass on to the next merchant. If she has just helped to attend a cholera patient hidden away in her home, she inoculates the stew from her finger nails, and the mixture, being a fine culture medium, is soon swarming with spirilla. In this manner and from equally filthy household habits almost all of the Manila cases can be attributed. But they were mostly sporadic cases, here one and there one, probably only one member of a family. Now and then a single pupil in a boarding scohol would be stricken, and investigation would bring to light the fact that she had received food from the outside, say some confectionery or a salad. Flies undoubtedly carried the infection from patients' discharges to exposed food supplies and started cultures this way, but this was of minor importance in the presence of the far more numerous ways of carrying it on the hands of filthy natives.

In the provinces we no doubt had many similar cases, but the bad epidemics of towns were invariably due to infected waters. The streams in the Philippines are the life of the country, and houses are built on the banks or overhanging them, so that the stream acts as a water supply and sewer for every one. It naturally followed that, as soon as a case occurred, the discharges entered the water and there was a general epidemic in the population living further down stream. Where the stream was large and there was a chance that one might drink some of the water without happening to take in a spirillum, the epidemic was not extensive, but where the stream was small and more crowded with spirilla the results were dreadful. In one town of this latter sort, the reports showed that over 25 per cent. of the inhabitants died within two or three weeks of the first case. In prior epidemics towns have been totally wiped out. Where there were many wells in addition to the stream, it was natural that some of them would escape infection and the users of that water escape. In one town, a famous spring supplied part of the people who were quite free of the disease which nearly decimated those using the river, and in those towns where the rich had well-protected cisterns for rain water these families were quite immune, excepting the sporadic cases infected elsewhere or from infected foods.

As before explained, the life of the spirillum in water is quite short. Reports from India show that infected wells and tanks are safe after three weeks, though we made no similar investigations in the Philippines. This fact gives the rational basis for the management of an epidemic. Of course, we must search for and destroy infected foods and prevent the sale of certain vegetables, like cabbage, which can harbor the germs, though many of the fruits and vegetables forbidden in the Manila epidemic were absolutely harmless. Mangoes, for instance, are not known to carry the infection. Bananas are probably safe, though there was a rumor at one time that the circulation of fluids in the plant was so rapid that bacilli

could be carried up from the roots to the interior of the fruit, but it is safe to say that this is merely an illustration of the wild thoughts possible in the nervous tension of an epidemic.

The sterilization of the urine and feces of cholera patients is also of importance to prevent the bacilli being washed into any water supply. Deep burial or sterilization by heat are impracticable, and dependence must be placed on one of the methods of chemical sterilization useful in typhoid. Experimentally it is found that the cholera vibrios are killed in a few minutes by weak solutions of carbolic acid or corrosive sublimate, and by mineral acid, 1/10000, in a few seconds, but for excreta it is thought that milk of lime is the best, in the proportion of 1 part lime to 40 of water.

We must search for the sick, who are invariably concealed to escape quarantine, and we must isolate them to prevent them from fouling a water supply, and finally we must close up for several weeks all wells, tanks and cisterns known to be infected. The British sanitarians are wedded to the plan of disinfecting such cholera wells by adding 2 to 4 ounces of permanganate of potash, in which solution the spirilli promptly perish. The permanganate is said to destroy all dead organic matter and thus to sterilize the water by depriving the spirilli of food so that they die of starvation. To be effective there must be a faint pink tinge in the water the day after the permanganate is used. Foul wells which destroy the color at once should be pumped out, if possible, and cleaned. In the absence of permanganate, alum has the next best reputation, 4 to 8 ounces to a well, but it is a clarifier rather than a disinfectant and carries down the bacteria in the coagula it forms. Finally, lime, 40 to 50 pounds to a well has been used, but it is not a safe means, as we have no data that it destroys the spirilli, whereas the permanganate has been repeatedly known to stop an Indian epidemic in 3 days after it was added to every well in town. Of course, we run the risk of being accused of poisoning the wells, but we will be accused of this, anyhow, so it makes no difference.

The main reliance must be placed on boiled water for all purposes. The more completely we could enforce this measure the more successful was the management of an epidemic. It was quite possible to do this among soldiers, though they were apt to be careless until one or two in a company died through disobedience, but among the natives any such plan was hopelessly impractical, as a rule. They could not possibly understand why it was necessary to boil the water, and have been known to take boiled water into the house as a fetish of some sort and then drink what they pleased. Hence, among an Oriental population, prevention of spread of the infection is not possible, never has been and never will be. The white man must do the best he can for the natives, but look out for himself. The permanganate method is the best in such circumstances, but where the natives use an infected stream we are helpless, and the natives will die until the stream is cleaned out by a heavy storm. Time and time again in the Philippines have local epidemics ceased after a long heavy rain. It not only washes out the stream bed, but each native collects rainwater to save the trouble of carriage, and there is less use of the infected wells. On the other hand, we have seen local epidemics increase with the rains where the surface filth has thus been washed into wells which were previously sterile.

In regard to patent sterilizers, such as the Forbes-Waterhouse, opinions are divided. This particular one is a complicated contrivance for boiling water and then to save fuel using this hot water to heat up the incoming stream. It boils the water only a few seconds, but when carefully tested in a laboratory by skilled bacteriologists and intelligent men it delivers a steady stream of sterile water. In the field in actual use it is rarely successful, and I have repeatedly seen it used without heat at all. It is an extremely dangerous contrivance. The same condemnation must be given to all forms of portable filters. If they work easily, they merely act as clarifiers, as the spirilli easily pass through such large pores. When they are efficient they require considerable pressure which can only be obtained in permanent plants. The large permanent filters for public supplies have proved themselves efficient in filtering out cholera spirilli and need no further comment. The use of copper sulphate in minute doses or of copper foil is worthy of trial in wells and cisterns, for it may be of extreme value in the absence of the permanganate of potash.

If it is really true that a strip of copper foil 3 inches square in the water bottles will destroy intestinal parasites accidentally present, we have a most valuable discovery for tropical residents who can rarely depend on filthy natives. Indeed, it is suspected that here and there dysentery may have been due to unboiled infected water introduced by servants after they had stolen the water carefully sterilized by the master himself. The matter deserves the greatest attention in our laboratories. Acidulated water is no doubt efficacious if cholera is present, as the bacilli are destroyed by mineral acids, but it is unpleasant and will not be used except under compulsion, and the copper foil treatment is, therefore, an advantage if it proves to be germicidal. The use of acid in wells is apt to be resented by the natives much more than the permanganate and is probably less efficacious.

The extreme ease of personal prophylaxis is comforting at least. We lived for a year in the midst of this disease, sometimes seeing the natives die all around us, and in our houses, even in our kitchens, but if we were sure to drink only boiled water, or bottled fluids known to be sterile, and ate only cooked or canned foods from scalded dishes, there was not the slightest danger. The patient himself is as harmless as one with typhoid, and if his discharges are sterilized or buried he never transmits the disease to his nurses. Cases could be cared for in the main hospital or, indeed, anywhere, for isolation was wholly unnecessary. In the first excitement of the epidemic, rather hysterical orders were sent out to cremate the bodies of the dead and burn down their houses, but this was all unnecessary. The buried corpse was harmless, for the spirilli perished at once. One military campaign was made in Mindanao in territory where every stream was infected and the natives were dying in large numbers, but not a soldier was taken sick. If soldiers violated orders and drank from streams, the results were dreadful. In another campaign the commanding officer of one company and eight or ten of the men died from this carelessness.

The spirillum is such a pure parasite that it will soon die even in India, so that it is kept alive by constantly passing through new hosts in those regions where it is endemic. Outside of India it loses vitality in its excursions from host to host, so that in the course of time it is too enfeebled to infect a new host, and the disease dies out. In any one locality its virulence diminished in a few months or even weeks, so that toward the end of a local epidemic many patients recovered and the physicians in attendance built up fine reputations for curing their cases. My own experience and the supervision of very many different methods of treatment led me to the

conclusion that there was nothing to be done for the patient, except make him as comfortable as possible. Morphin, hot applications and massage for the cramps, with strychnin and other heart stimulants later, were about all that could be done. Remedies by the stomach were only rejected, and saline injections, either intravenous or hypodermic, only passed into the intestines within a few minutes and drained off more blood serum. If the patient lived through the acute stage, he could be saved by skillful management of his food and stimulants, but the treatment of the acute stage is hopeless. It is purely a matter of the patient's resistance and the virulence of the particular culture of spirillum he has swallowed.

Haffkine, in India, and Murata, in Japan, have apparently produced a certain degree of immunity by injecting the killed spirilli, and Strong, in Manila, has encouraging results with the fluid from which the killed spirilli have been filtered. Strong's filtrate causes a serum to form in man and animals which has high bactericidal and agglutinative power, though but slight antitoxic power. Work along these lines gives our only hope of future success.

Our main reliance, then, in cholera epidemics outside of India is to quarantine the infected area as rigidly as possible, protect water supplies, close up those known to be infected, use permanganate in the wells and cisterns, remove the sick to where they will be harmless, try to get the natives to use boiled water, prevent the sale and exposure of foods which are good culture media, and patiently wait until the spirilli have lost their virulence.

The above paper contains the conclusions to which we came as a result of the personal management of a severe and widespread epidemic, and it is also based on several score reports which came into my hands as chief surgeon of two of the brigades in the Philippines. As it would be meaningless and a waste of time to quote names, places, dates and statistics, these have been omitted, but it may be remarked that the official reports themselves are on file. It was requested that this paper would also include an account of the *Spirillum choleræ asiaticæ*, but we have discovered nothing new about this organism which is not already in the text-books.

We can conclude that we need never be afraid of a cholera epidemic in America, as sufficient is known to prevent it if we will not interfere with the sanitarians. One more Oriental plague has been removed from the list which has been the dread of the Occident, and once again we have a lesson that the people for their own protection had better give more authority to the sanitarians.

DISCUSSION.

Dr. Denslow Lewis, Chicago, stated that his experience with cholera is necessarily very limited, being confined to observations in Europe in 1892, at which time he visited the principal European cities as a special commissioner from the Health Department of Chicago and from the Illinois State Board of Health. Cholera broke out at Hamburg at that time and there were cases in Paris and a few in London. In Great Britain, the matter became of very serious importance on account of the isolated condition of that country, and Dr. Thorn-Thorn, now deceased, and Dr. Shirley Murphy of the health department of London were up in arms against the entrance of cholera into England. Great excitement prevailed, and fear was expressed, not only that the cholera might spread, but that commerce would be interfered with. Dr. Lewis noted at that time the great value of having an effective sanitary organization throughout a country. In place of quarantining the ships, which would have interfered most seriously with commerce, it was possible in discharging the passengers to have each one under surveillance, so that no matter to what little town in England, Ireland or Scotland he should go, there would be a health officer there who would keep track of him and isolate him in case he showed any suspicious symptoms. Dr. Lewis said that it would be well in this country if our sanitary measures could be centralized to some extent, so that such a system of surveillance in case of necessity might be possible. It is easily seen what very great value this system has under these conditions. Dr. Lewis recalled a conversation he once had with Commander Lucien Young, in which the latter informed him that when his ship was in an infected harbor, the exceptional health of his men was remarked on. The sailors of other ships became ill, and many of them died, but his sailors were well. He attributed this freedom from disease to the use of alcohol, which he recommended on that occasion, and Dr. Lewis asked Dr. Woodruff's opinion regarding this matter, because, if alcohol under these conditions is of value, it is an important fact for physicians to know, for the lives of many of our sailors may depend on their knowledge.

Dr. Woodruff said that with regard to quarantine at the port of entry, the British solution is the proper one for them. The existence of Great Britain depends on its trade, and any interruption of it, even for a short time, would be fatal. Two-thirds of the people get their food from America, and at times there is on hand, so it is said, only three or four weeks' supply, so that they would really suffer from want of food in case of an interruption of their traffic for more than that time. That is the reason why war between Britain and America is utterly impossible; the British would not permit it. Consequently, they must have some means of following up cases and of preventing interruption of trade, and their splendidly organized sanitary service allows them to do that; but there is no other place in the world that Dr. Woodruff knows of where it can be done. All other places would have to keep a ship under surveillance. If there were any sick, they would be isolated, but the others could not be turned loose until it was certain they were not infected. With regard to alcohol, he said that the evidence is conclusive that any irritation of the stomach from alcohol permits the bacillus to get through into the intestine. It seems as though a person on a spree who drinks infected water is very apt to have cholera; Dr. Woodruff has seen that occur a number of times among soldiers. The stomach is undoubtedly able to dispose of an enormous number of spirilli, and in an epidemic people must be drinking spirilli all the time, but as they are killed in a few minutes in any acid solution, even one to ten thousand, the stomach juices in good health will destroy them. A man is safe unless he drinks an exceedingly large number of the germs; but if a soldier is allowed to go on a spree or to acquire in other ways an acute gastritis, it alters the tone of the stomach and probably lowers the acidity of the juices. Dr. Woodruff found many cases of soldiers dying shortly after drinking large quantities of alcohol. There is no evidence that small quantities of alcohol do any harm, but he does not think that alcohol is beneficial except in the case of acid wines. The spirilli will not live on the cut surface of a lemon, for instance, and acid drinks of all kinds are beneficial. The majority of physicians agree that it is better not to be a total abstainer in the tropics, but they are not willing to go on record, because it is so revolutionary. The very foundation of our faith in tropical hygiene is total abstinence, but Dr. Woodruff is convinced from the statistics that he has gathered that a little stimulant with lunch and dinner, but at no other time, is a very good thing, though excessive drinking is exceedingly bad.

A Voice from the Tombs Warning Against Quacks.—There is said to be a monument in the graveyard at Hameln, in Germany, over the graves of two children who died in 1792, which bears the following inscription. It states that the children were sent to death "by a charlatan's hand—a warning to the entire land. Trust your life only in the hands of a sure physician; if you die then you will at least have done your duty."

Wir sind durch eines Pfuschers Hand zu früh hierher geschicket,
Zur Warnung für das ganze Land und den, der dies erblicket.
Sein Leben traue jedermann nur sich're Aerzte Händen an;
Geht er dann auch die Todesbahn, hat er doch seine Pflicht gethan.

Special Article

IMMUNITY.

CHAPTER XXVII (CONCLUDED).

TUBERCULOSIS.

The essential principles in the prevention of tuberculosis consist of first, the early recognition of the disease, so that the patient may be properly treated and cured, if possible, with the result that a new center of contagion is avoided; second, the rendering of well-developed cases harmless by suitable isolation and proper disposal of infected excretions; third, the disinfection of the rooms, clothing, linen and surroundings of tuberculous patients. A fourth point, the prohibition of marriage among the tuberculous, is of great consequence, although we have little ground to hope for its realization on account of sociologic considerations. A fifth point, not yet fully established, is the possibility of universal vaccination against the disease.

Principles of Prophylaxis.

In most cases the burden of early diagnosis falls on the family physician, and in addition to the usual clinical and bacteriologic methods of examination, the use of tuberculin is often of value when given as described below. That tuberculosis of the lungs and cervical lymph glands is curable in a large percentage of the cases when subjected to modern methods of hygienic or surgical treatment is now sufficiently well known. Aside from radical intervention, as practiced in surgical cases, the most important procedures are those of keeping the nutrition of the patient at the maximum and providing for a life in the fresh air and sun.

The collection of infected sputum in properly constructed water-proof paper boxes, which, with their contents, should be burned daily, is the safest method of disposing of this material, and the most effective means of preventing infection of the patient's surroundings. Metallic, glass or earthenware sputum-cups containing 5 per cent. carbolic acid are serviceable, but the frequent cleansing to which they must be subjected is not without danger to others. When sputum is collected on a handkerchief the latter should be boiled within twelve hours and not allowed to dry; that the hands of the patient are likely to be contaminated from the handkerchief is evident. In coughing, the handkerchief should be held to the mouth to catch droplets of sputum and saliva which are expelled. The ordinances and rules which prohibit expectoration in street cars and public places should be enforced. When bacilli are discharged in the urine and feces or in the pus of tuberculous abscesses and sinuses, these secretions should be disinfected by suitable means (chlorid of lime). Healthy persons should come in contact with the tuberculous as little as possible, and the eating utensils of the latter should be used by no one else.

Disposal of Sputum.

The floor of a room which is inhabited by a tuberculous person should always be moistened before it is swept, in order to avoid stirring up the dust. After the death or removal of a patient, the entire surface of the room and all its contents should be thoroughly disinfected by appropriate means. The proper disinfection of the premises which were once occupied by a consumptive should be a legal requirement, just as similar procedures are demanded in the case of smallpox and some other contagious diseases.

Disinfection.

The special hospital in which the indigent tuberculous may be properly cared for and isolated has been a powerful factor in causing the decrease of tuberculosis which has been noted in many countries. The removal of a patient to such an institution means the elimination of an infected focus from the community.

Cold-blooded animals (fish, amphibians, reptiles), and most birds are not highly susceptible to tuberculosis, although special varieties of the bacillus cause the disease in certain of them under natural conditions. When tubercle bacilli are injected into the circulation of birds, they may remain in the blood and organs for months, producing little or no tissue change, although they retain their virulence for other animals (guinea-pig). No animal exceeds the guinea-pig in its susceptibility to this disease. Goats and sheep are fairly resistant, and the same is probably true of the horse, although its artificial infection is not difficult. That different races of a species may vary in their susceptibility is illustrated by the field mouse, which is highly susceptible, and the white mouse, which is relatively immune. Although similar variations may exist among different races of men, they are not readily demonstrated. The high susceptibility which appears to exist among certain races, as the negro, may be explained in part by unhygienic methods of living, in which safeguards against infection are not taken.

Susceptibility and Immunity.

Racial and Individual Variations.

The discovery of healed or healing tuberculous foci in 70 to 90 per cent. of all autopsies, in contrast to the 15 to 20 per cent. of deaths from tuberculosis, shows that susceptibility and immunity are subject to marked individual variations. The ability of an individual to overcome a tuberculous infection is referred in a vague way to an unusual resistance on his part; his defensive powers are said to be strong. Although we remain to a large extent in the dark concerning these defensive powers, they seem to rest chiefly in the ability of the tissues to destroy the bacilli; that is, the resistance is antibacterial. Many bacilli may be destroyed by leucocytes or endothelial cells before they are able to cause tissue changes. It was stated previously that healing in many instances depends on isolation of the focus by epithelioid, lymphoid and plasma cells, and by connective tissue. On general grounds we may assume that a tissue reaction of this nature takes place with greater vigor and rapidity in a strong, healthy person than in one of lower vitality. Aside from the question of individual resistance, recovery or progressive infection may depend on the smaller or larger amount of bacilli which gained entrance to the body, as well as on their virulence. Experiments show that susceptible animals recover from minute doses, whereas they succumb to somewhat larger doses of bacilli.

Various external influences increase susceptibility and resistance. Tuberculosis is to no small degree a disease of the poor, who so frequently live in an undernourished condition, in crowded, dirty rooms, with little sunlight and fresh air. The disease is more common in the city than in the country, where an outdoor life is the rule. Alcoholism, diabetes, measles, scarlatina, whooping cough often, and influenza not infrequently, are precursors of tuberculosis. Conditions which favor anemia, as pulmonary stenosis (rare), predispose to pulmonary tuberculosis, whereas insufficiency of the left heart, accompanied by congestion of the lungs, is not often associated with the disease, although it has no influence in preventing infection in other organs. Tuberculosis is more frequent during the first two or three years of life, when children are so commonly confined, than from the third to the fifteenth years, when they live in the open air so largely. From the fifteenth year to middle life or later the disease increases in frequency because of greater exposure to infection. Physicians who are familiar with tuberculosis in Scandinavian countries and in America comment on the extent to which tuberculosis develops among Scandinavians after they come to this country.

Predisposing Influences.

Nothing is commoner than the occurrence of several successive cases of phthisis in the members of a family, and the expression, heard on all sides, that "tuberculosis is in the family," indicates the general belief that a family tendency may be transmitted from generation to generation. During recent years, however, closer analysis of the conditions has led many to doubt the existence or, at any rate, the importance of family tendency or inherited predisposition, and to refer the frequent occurrence of tuberculosis in a family to the greater exposure to infection which is occasioned by close contact with a pre-existing case. Cornet, who has made a close statistical study of tuberculosis, discredits entirely the hypothesis of hereditary predisposition, and Cornet and Meyer refer to the "*habitus phthisicus*," which we are disposed to look on as an objective evidence of hereditary tendency, as a result rather than a cause of pulmonary tuberculosis. It is fair to say that the development of tuberculosis in several mem-

"Hereditary Tendency."

bers of a family is not *prima facia* evidence of the existence of a family predisposition for the disease. Where there are tubercle bacilli there is likely to be tuberculosis, and the occurrence of the infection in one furnishes the prerequisite, that is, bacilli, for the development of the disease in other members of the family. It is probable that the verdict of family tendency has often been pronounced erroneously. At the present time, however, we may not be justified in considering the subject a closed chapter.

It is the commonly accepted opinion that recovery from tuberculosis does not confer immunity to subsequent attacks.[1]

Concerning Acquired Immunity.

Cornet and Meyer suggest as an explanation of this condition that the local lesion is so strictly isolated that a sufficient amount of toxin does not escape into the circulation to cause a general reaction, hence the formation of antitoxin or other antibodies is impossible. This explanation seems inadequate, however, when we remember the strong antitoxic immunity which develops in tetanus and diphtheria in spite of the localization of the bacteria. The results of artificial immunization, in which unlimited amounts of toxic material or bacilli may be injected without the formation of satisfactory antitoxins, seem to indicate that the toxic constituents of the tubercle bacillus lack the power of causing the formation of a strong antitoxin.

In opposition to the prevailing opinion, certain observers find ground for the belief that recovery from local tuberculosis of the lymph glands, skin or bones, actually does render the patients immune to pulmonary consumption (Maragliano and others). In early experiments Koch noted that when tubercle bacilli were injected subcutaneously into guinea-pigs which were suffering from general tuberculosis, the subcutaneous inoculation remained as a local infection and not infrequently healed after sloughing. The general infection would seem to have increased local resistance. Although other investigators failed to duplicate the observation of Koch, this result is said to have suggested to him the idea of active immunization as a cure for tuberculosis, a method subsequently practiced by treatment with the various tuberculins.

Active Immunization.

In the United States, Trudeau and de Schweinitz, and in Europe, Koch, Behring, Maragliano and Baumgarten, with their followers, have practiced assiduously the artificial immunization of animals with the tubercle bacillus or various preparation from the organism, with the hope of producing active immunity to the disease. Some of the procedures, especially those of Koch, have been transferred to man as curative meaures. In addition to active immunization of man, Maragliano especially has prepared an antituberculous serum, to which he assigns antitoxic and bactericidal properties, and which he and others claim to have used with good results in the treatment of tuberculosis. Marmorek also prepares an "antitoxic" serum.

The results of this work have shown the possibility of so increasing the resistance of various domestic animals (guinea-pig, sheep, rabbit, dog, calf, cow, etc.), that they withstand doses of bacilli which are invariably fatal for control animals. When the bacterial cells are used for immunization it is customary to begin treatment either with killed bacilli, or with living cultures which are naturally of low virulence, or the virulence of which has been lost by prolonged artificial cultivation. Relatively avirulent strains as those cultivated from fish, turtle or fowls, have been utilized for the first injections. As immunization progresses one of two processes may be followed: either the quantity injected may be increased gradually, as when killed or avirulent bacilli are used, or the immunization having been begun with avirulent living cultures those of higher virulence may be substituted gradually. In any case immunization is extremely difficult and slow, and many animals may be lost from cachexia or from tuberculosis which develops from hasty progression in dosage. The subcutaneous injection of intact cells has the disadvantage that local abscesses frequently develop, and to avoid this the intravenous injection of smaller doses has been practiced in some instances. For active immunization the "new tuberculin" of Koch, containing all the cellular constituents in a finely divided form has the advantages that it may be given subcutaneously without abscess formation and is absorbed with some rapidity. An animal or person immunized with TR is immune to all the constituents of the bacillus. The condition produced by active immunization is one of increased resistance rather than of absolute immunity; large doses of bacilli may cause infection. The nature of the new resistance is not satisfactorily established, although Maragliano refers to the formation of antitoxic and bactericidal substances.

Inasmuch as tuberculin is used not only for diagnosis but also for curative purposes in man (active immunization), and since the principles of action are similar in both instances, the use of tuberculin may be considered at this point properly. From 0.5 to 1 c.c. of tuberculin may be injected into a normal guinea-pig without the production of local or general changes. When, however, 0.1 to 0.15 c.c. is given to a tuberculous guinea-pig the animal dies in from twenty-four to forty-eight hours. A healthy man likewise is not susceptible to moderate doses, but a tuberculous man is even more susceptible to the toxin than the tuberculous guinea-pig, since 0.001 c.c. often causes an intense reaction. E. Weigert classifies the disturbances which tuberculin may produce in the tuberculous as thermal, circulatory, respiratory, digestive, nervous and vasomotor, and secretory. Necrosis may be produced at the point of injection. In so far as the diagnostic use of tuberculin is concerned, we are interested chiefly in the thermal disturbances, which are accompanied by chills, malaise and muscular pains. Following injection of a suitable quantity, a period of incubation of from eight to fourteen hours follows, and at the end of this time the temperature rises progressively for two or more hours and may reach a maximum of from 40 to 41 C., and after remaining at this point for from two to six hours, recedes rapidly. In addition to this general reaction, the toxin causes congestion, redness and swelling at the site of the tuberculous lesion, i. e., the foci become surrounded by an inflammatory reaction. This is seen most readily in the tubercles of lupus vulgaris, and in the lungs is manifested clinically by an increase in the râles and expectoration which is caused by the exudation accompanying the inflammatory reaction.

Tuberculin in Diagnosis.

For diagnostic purposes the technic of administration is as follows: It must first be assured that the patient has no continued fever by noting the temperature every two hours for several days. A quantity of 1 mg. of tuberculin is injected subcutaneously, this amount being obtained by suitable dilution of the original solution. If no temperature is produced by this amount, 5 or 10 mg. may be given in a second injection after an interval of two or three days. When the quantity is determined which causes a rise in temperature of one-half degree C. or more, the dose is to be repeated after the temperature produced by the first injection has subsided. Two such reactions should be considered necessary for positive diagnosis. One who after injection of 10 mg. on two different occasions gives no reaction is to be considered free from tuberculosis (Marx).

Limitations in Diagnostic Use of Tuberculin.

Experience has taught certain limitations to the diagnostic value of tuberculin: 1. The test can not be applied to febrile cases inasmuch as the pre-existing fever could not be separated from that which the tuberculin might produce. 2. Cases of advanced tuberculosis frequently fail to give the reaction. The tissues of such patients have become resistant to the poison. 3. It is said that tuberculin frequently causes a similar reaction in those suffering from leprosy, actinomycosis and syphilis. Cornet and Meyer suggest that the phenomenon as it is occurs in leprosy and actinomycosis, is to be considered in the nature of a "group reaction" in view of the close relationship of the tubercle bacillus to actinomyces and *Bacillus lepræ*. It does not always occur in syphilis, and in positive cases a latent tuberculosis may be responsible for the reaction. By a number of writers the facts just stated are taken to indicate that the reaction is not of specific character, and that it may often be obtained in the tuberculous by the injection of apparently indifferent substances as trypsin, peptone (albumose), sodium cinnimate and the "mycoproteins" of other bacteria provides additional support to

1. Similar conditions prevail in relation to pneumonia, influenza, erysipelas.

this view. On the other hand, since relatively large amounts of these indifferent substances are required to produce the reaction, whereas minute amounts of tuberculin suffice, others hold that the specificity of the latter substance may be maintained.

Early cases of tuberculosis react to tuberculin in the most typical manner. On account of the fact that latent or healing cases may respond to the test, its positive outcome gives no indication of the seriousness of the patient's condition, which is a practical question of some importance.

Danger (?) in Use of Tuberculin.

The fear that tuberculin, in producing an inflammatory reaction around tuberculous areas, might cause a dissemination of the bacilli, has acted strongly in preventing the use of the toxin for both diagnostic and therapeutic purposes. On *a priori* grounds, such an event would seem to be a possibility, for with the inflammation, the vessels surrounding the tubercles become congested, new leucocytes accumulate and there is an extravasation of fluid. Since during the subsidence of the inflammation a certain number of leucocytes may again leave the area and as the extravasated fluid returns to the circulation, bacilli may be carried away by the leucocytes or the fluid. Contrary to such reasoning, however, the observations of Koch and his followers in animal experiments and in the diagnostic and therapeutic use of tuberculin in man, lead them to say that tuberculin when properly administered never causes an aggravation or extension of the disease. Similar conclusions were reached by Trudeau, Baldwin and Kinghorn in animal experiments in which, "as in previous observations, a favorable absorptive influence was noted on the diseased focus." Bearing in mind the limitations mentioned above, and the possibility of the reaction being induced by leprosy, actinomycosis and syphilis (?), the statement of Osler may be quoted that "in obscure internal lesions, in joint cases and in suspected tuberculosis of the kidneys the use of tuberculin gives most valuable information."

Tuberculin Therapy.

The original unfavorable results which were obtained in the therapeutic administration of tuberculin are referred by Koch, Petruschky and others to improper selection of cases. Those in a febrile condition and those in whom destruction of tissue is advanced are not suited for the treatment, and in them little or nothing is to be hoped from administration of tuberculin. Its curative value is supposed to depend on the local inflammatory reaction which it causes around tuberculous foci, and perhaps also on the necrosis which Koch claims is caused in the tubercles themselves. It must be the object during the whole course of treatment to administer the toxin in such doses that a moderate or minimum local reaction occurs. Larger amounts which would cause febrile reactions and eventually render the patient resistant to tuberculin and thus preclude the local changes are to be avoided. It is customary to begin with 1/10 to 1/20 milligram and gradually to increase the amount injected. If fever is caused by a particular dose, larger amounts are not to be given until fever ceases to follow this dose. By the time a dosage of 50 milligrams is reached, which may require many months, the patient usually has lost the power of reacting and the injections are to be interrupted until he again becomes sensitive to the toxin (from three to six months), after which treatment should be resumed. Cure is recognized when the patient has lost permanently the power to react, his condition then being identical with the healthy man. Numerous German writers on the basis of practical experience assign an unquestionable curative power to tuberculin when administered as described. Its use has not extended widely.

The principles on which the action of tuberculin depend are hypothetical. Marmorek says that the fever and local changes are due to a special toxin (the true toxin), which the bacillus secretes under the stimulation of the tuberculin. Ehrlich supposes that cells adjacent to the tubercles have been injured moderately by the tuberculin which is produced *in situ*, and that as a consequence of this injury such cells are particularly susceptible to the additional tuberculin which is injected, and react to the stimulus by proliferation (Marx). In accordance with this conception the fever also in some obscure way is related to the local reaction. Investigations are needed to clear up this point.

Treatment with TR and "New Tuberculin."

In active immunization with TR, in which the solid constituents of the bacilli are injected rather than the toxic tuberculin, the cure is supposed to depend on the development of immune bodies rather than on local tissue changes. Koch published favorable results from its use, but reports from other sources were less satisfactory. The most recent preparation of Koch's, *Neutuberculin* (*Bazillenemulsion*), consisting of finely powdered bacilli with all their toxic constituents, suspended in equal parts of glycerin and water, is used in a similar manner. Koch proposes to use the agglutinating power of the patient's serum as an index of the immunity caused by the injection. The formation of agglutinins perhaps indicates in a general way the ability of the patient to form antibodies, but from the well-known fact that the agglutinating power does not go hand in hand with the protective power of serum in relation to many infections, this method of estimating the degree of immunity does not rest on a good basis. The agglutination reaction is carried on with the emulsion which is used for immunization. Treatment in man is begun by the injection of 0.0025 mg. of solid substance and the amount is increased rapidly every day or two until a reaction occurs with a temperature of from 1.5 to 2 C. After a pause of a week the injections are begun again and eventually a dose of 20 mg. may be given. During treatment the agglutinating power of the patient's serum is tested frequently, and if it is not sufficiently high intravenous injection of the fluid portion of the emulsion may be practiced. The agglutinating power may go as high as from 1 to 25 to 1 to 150, rarely 1 to 200 to 1 to 300.

With both TR and the last preparation animals may be successfully immunized against tuberculosis.

Serum of Maragliano.

Maragliano, after many years of experimentation and treatment of human tuberculosis, concludes: "1, that it is possible to produce a specific (serum) therapy for tuberculosis; 2, that it is possible to immunize the animal organism against tuberculosis as is done in other infectious diseases, and that there is good reason to hope for an antituberculous vaccination for man." He speaks in rather broad terms of the defensive powers of the body against tuberculosis and seeks the demonstration of such powers in properties of the serum. He recognizes bactericidal, antitoxic and agglutinating properties of the serum as normal defensive powers of the body, and says that these powers are increased as the result of immunization. The bactericidal power of the serum is determined by its ability to inhibit the growth of cultures of the tubercle bacillus; its antitoxic power by its ability to neutralize a test poison which is obtained from cultures by macerating them in hot water; and its agglutinating power is tested with the homogeneous cultures of Courmont and Arloing. For the immunization of animals a soluble toxin prepared by the filtration of young cultures, and also the intracellular toxins which are extracted by water from killed virulent bacilli, are injected. By using both substances, antitoxic and other antibodies are said to be formed.

The serum of immune animals (horse, calf and cow) is used by Maragliano in the treatment of human tuberculosis, and the unusual claim is made that the serum is effective not only because of its own properties, but because it causes the tissues to form additional antibodies. Without discussing this apparently paradoxical condition we may only note the very favorable reports, from Italian sources especially, which have followed the use of the serum. Concerning 2,899 collected cases Maragliano says: "These statistics show that out of more than 250 patients with circumscribed non-febrile tuberculosis 38 per cent. were cured and 49 per cent. were much improved; that out of 938 patients with circumscribed febrile tuberculosis 18 per cent. were cured and 54 per cent. were improved; that out of 665 patients with diffuse tuberculous bronchopneumonia without microbic associations (mixed infection) 14 per cent. were cured and 43 per cent. were improved. Out of 332 patients with diffuse tuberculous bronchopneumonia with associated microbic infection 9 per cent. were cured and 36 per cent .improved. Of 712 patients with cavities 6 per cent. were cured and 40 per cent. were improved. Of all these patients 2,396 were in a febrile condition. The fever disappeared in 1,111 cases, i. e., in 46 per cent." Marag-

liano insists on the best hygienic surroundings for his patients, and under these conditions additional statistics show that a larger percentage of recoveries takes place among those treated with serum than among those who depend on hygienic surroundings alone. It is claimed that the serum manifests its curative powers and causes an increase in specific antibodies when given *per os*.

Mixed Immunization and Vaccination.

Maragliano also advocates a method of mixed active and passive immunization in man, in which a cubic centimeter of serum is given subcutaneously every second day for twenty days; for a second period the same quantity of serum is given, but supplemented by increasing amounts of the toxic extract of bacilli; and for a third period the toxic extract is injected in increasing doses during from three to four months.

The same authority thinks it may be possible to vaccinate against tuberculosis by a single subcutaneous injection of a vaccine (killed bacilli?). He states that in both man and animals antibodies are formed in the serum following the vaccination, and that in animals their resistance to infection with living bacilli is increased. Marmorek asserts that killed tubercle bacilli which have been treated with his antitoxic serum are readily absorbed from the subcutaneous tissue, and proposes the use of such bacilli as a vaccine.

Serum of Marmorek.

As stated above, Marmorek discredits tuberculin as the specific toxin of the bacillus. His "true" toxin is prepared by growing young and virulent bacilli ("primitive" bacilli) in a medium which contains leucotoxic serum, liver extract, glycerin and bouillon. The leucotoxic serum is prepared by immunizing calves with the leucocytes of guinea-pigs. Theoretical considerations which we need not detail suggested the use of this medium. The cultures are filtered after a few days of growth and the formation of tuberculin is avoided as much as possible. The immunization of horses with this filtered toxin yields the antitoxic serum of Marmorek. Conflicting reports concerning its value are published from French sources. Schwartz announces the complete cure of a case of tuberculosis of the larynx, and another of virulent tuberculosis of the conjunctiva and cornea by the exclusive use of Marmorek's serum.

Immunization by Milk.

Both Maragliano and Behring affirm that the immunizing substances are excreted in the milk of cows which have been strongly immunized against tuberculosis, and both have suggested that the use of such milk by infants may render them more resistant to tuberculosis.

The agglutination reaction has been suggested by Courmont and Arloing and others as a means of diagnosis in tuberculosis. Others who criticise this idea affirm that agglutinins are not developed sufficiently in the tuberculous to render the test of value, and that the serum of normal man may be as highly agglutinating as that of the tuberculous. In view of the fact that the tubercle bacillus grows in coherent masses in ordinary cultures special manipulations are necessary to render it suitable for the agglutination reaction. Courmont and Arloing prepare a homogeneous culture by first growing the organism on a certain potato medium and then in glycerin bouillon, which is frequently shaken. The cells are said to be well isolated after this procedure. Koch uses the emulsion of powdered bacilli for the test. The serum of man or animals as a result of immunization may reach an agglutinating power of 1 to 2,000 exceptionally (Maragliano).

Clinical Reports

AN UNUSUAL CASE OF SUNSTROKE.

J. G. JONES, M.D.

VINCENNES, IND.

I report this case because of the extreme rarity of sunstroke in this region during the autumn months, when the temperature usually ranges in midday from 78 to 88 F. in the shade, and also to demonstrate the occasional excessive susceptibility to an attack of sunstroke by an individual who has previously been stricken.

Patient.—A well-developed girl of 11 years of age, always in good general health, had been suffering with slight headaches for a few days previous to the attack. She had until recently been an inmate of the County Orphan's Home, when she had been taken for trial by some country people with a view to adoption. Her parentage history was rather obscure.

History.—On Sept. 15, 1905, at 11 a. m., the patient was standing near a tree in a garden on the hillside only partially exposed to the solar rays, awaiting the return of her companion. This individual returned within two minutes after leaving the girl to find her fallen to the ground and unconscious. The girl was carried to a neighboring farm house, where I saw her within three-quarters of an hour after the attack.

Symptoms.—The patient was in a deep coma; rectal temperature, 107 F. The skin was dry and flushed; pulse, 133 a minute, full and bounding; respiration, 33, irregular and deep. Clonic spasm of abdominal and respiratory muscles was brought on by touching the patient; in the intervals the muscles relapsed into flaccidity. Urine examination was negative. The eyes were suffused and staring. The pupils were widely dilated and remained in that condition for an hour, after which they contracted down to pin-point size, gradually reaching normal within another half-hour. In short, the classical symptoms of sunstroke of the hyperpyrexial form were present.

History of Previous Attack.—On inquiry, I found the history of a previous attack of unconsciousness while at the Orphan's Home during the summer of 1904, but could get no information as to what the diagnosis had been, yet, from the description given, I am sure it was a sunstroke. I excluded, with fair satisfaction, all the causes of coma, except sunstroke, and even with this negative diagnosis added to so classical an array of positive symptoms I found it difficult to accept that diagnosis, for the day was pleasantly cool, with a temperature of only 85 F. in the city at noon.

Treatment.—The treatment was very simple. The child was kept for several hours in a cold pack, with an ice bag at the head. Frequently changed cloths rung out in cold water were applied over the abdomen and precordial region, with an occasional rectal injection of cold water. Consciousness returned two hours after the attack, accompanied by some nausea. The temperature returned to normal by lysis within 24 hours, with no remission. There was complete recovery from the prostration in three days.

Remarks.—Some authorities speak of the pupils being contracted in sunstroke and consider this one of the diagnostic points, but it is my experience that they are nearly always first dilated for from 20 to 60 minutes and then contract to "pin point," where they remain for a variable period.

RUPTURE OF INTESTINES BY KICK OF A HORSE.

W. A. JOLLEY, M.D.

BOULDER, COLO.

History.—A. W., a stout farm hand, was kicked in the abdomen by a heavy horse at 12 m. He was thrown some distance by the blow, falling on his shoulder, and lay unconscious for several minutes. He vomited once, but presented no signs of shock. The abdomen showed only a small bruise and was not very painful, for 1/16 grain of morphin relieved the pain. He rested easily and complained more of the pain in his shoulder than of that in his abdomen, until 7 p. m., thirty hours after the accident, when he began to vomit and to present evidences of shock which rapidly increased. He died at 11 a. m., forty-seven hours after being injured.

Autopsy.—No external signs of injury. Internally, a general peritonitis from a transverse laceration of the small intestine about eighteen inches from the stomach. The laceration was one third of the circumference of the intestine.

I report the above case, as it illustrates that a very severe injury of the intestines may be present without giving any evidences until too late for surgical aid.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 DEARBORN AVENUE . . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

SATURDAY, OCTOBER 14, 1905.

SUPPLEMENTARY COMMENTS ON THE RECENT WORK ON THE PNEUMOCOCCUS.

The studies on the pneumococcus under the auspices of the Medical Commission for the Investigation of the Acute Respiratory Diseases of the Department of Health of the City of New York[1] have resulted in valuable contributions to our knowledge of methods of identifying the pneumococcus, of differentiating it from the streptococcus and other simulating or closely related organisms and of its distribution and viability under various conditions.

The method adopted by the commission was, first, to secure the co-operation of twenty bacteriologists in various cities who made independent studies along the lines suggested, and, second, to establish a central laboratory or "clearing house," to which, ultimately, cultures from the various independent workers were sent for comparative study under a single group of observers. The birth of this species of organized "control" work will be hailed with delight by all who appreciate the susceptibility of an individual to error. And the wisdom of the plan is borne out by the results—many of the workers contributing valuable independent observations, while the central committee has served to minimize errors of identification and thus to increase the value of statistics to be ultimately based on the whole series of cases.

Bacteria were studied from the mouths of normal individuals, from pneumonic patients, from autopsies and from the sputum and exudates from pathologic cases other than pneumonias. Although the technic for identification varied considerably, the work is, in the main, supported by that of the central committee.

From the study of the morphologic and cultural characters of the pneumococcus, from other simulating or closely related organisms and absorption experiments the principal organisms encountered are divided into typical pneumococci on the one hand and typical streptococci on the other. In addition there were isolated a large number of related organisms which will require further study before they can be classified satisfactorily.

While the work of various foreign and domestic investigators left little doubt that a certain percentage of normal individuals harbor pneumococci in their mouths, it seemed desirable to repeat these observations in the light of recent developments in our knowledge of the biology of pneumococci and streptococci. The work of the commission leaves no doubt that about 50 per cent. of healthy persons harbor typical pneumococci in their mouths. Thus in one series of 78 "normal" cases the pneumococcus was found in 50 per cent.

In the majority of cases when pneumococci were not found streptococci were isolated. These, together with influenza-like organisms, were sometimes associated with the pneumococcus.

If positive conclusions can be drawn from a comparatively small series of cases we may infer that a greater percentage of individuals in crowded centers harbor the pneumococcus than in country districts; and that though some may always harbor virulent pneumococci, others, as a general rule, are more apt to do so in the winter months than in the fall or spring. And this seems in accord with what is known concerning the transmission and viability of the pneumococcus. It would seem necessary to continue these studies with special reference to the occurrence of pneumococci in the throats, as well as in the mouths of human beings.

In testing the virulence of the strains isolated from various sources, the technic of one investigator varies so much from that of another that it is impossible to correlate statistics on this point. In one series, in which a uniform procedure was carried out by the subcutaneous inoculation of rabbits (chiefly) with "mass cultures," the following percentage of virulent strains was found:

Amount Inoculated.	Pneumonia Cases.	Healthy Individuals.
4.0c.c.	87 per cent.	69 per cent.
0.1c.c.	51 per cent.	31 per cent.

In another series, in which 51 cultures of mouth pneumococci were tested by injecting white mice subcutaneously with the second "generation" grown for 24 hours on serum agar slants, 78.5 per cent. were virulent and 21.5 per cent. avirulent. About the same proportion of avirulent pneumococci were found in the mouths of pneumonia patients (77 per cent.) as in the mouths of normal individuals (79 per cent.). Reasoning from analogy, pneumococci from cases of pneumonia are probably of increased virulence for human beings and, since the virulence (for experimental animals) of pneumococci from normal cases can be rapidly increased, it becomes clear that all possible measures should be taken to restrict the dissemination of pneumococci by prohibiting public expectoration. In connection with this, the suggestion is made that the value of various lotions in ridding the mouth and throat of pneumococci and other pathogenic bacteria merits careful investigation.

There seems to be some evidence opposing the belief that pneumococci are permanent inhabitants of the human mouth, except possibly in the case of certain individuals. It was found that they may persist for days or weeks in the mouths of patients who have recovered from pneumonia, and individuals who have been repeatedly found "negative" may acquire the pneumo-

1. Jour. of Exp. Med., 1905, vol. vii, No. 5, pp. 401-632.

coccus by association with pneumonia or with "positive normal" cases.

The very complete study of the important question of the viability of the pneumococcus shows that its life duration in moist sputum, in the dark at room temperature, averages less than two weeks (11 days); and in strong light less than 5 days. In dried sputum in the dark it lives for an average of 35 days; in diffuse light, 30 days; in sunlight, less than 4 hours. In powdered sputum, even when kept in the dark, the death of the pneumococcus takes place in from 1 to 4 hours, and if exposed to sunlight death ocurs within an hour. When dried on cloth it lived slightly longer than on non-absorbing surfaces, such as glass, tin or wood. Moist sputum *en masse* may be considered innocuous except to persons handling recently contaminated clothing, bedding, etc. When such masses are dried and then powdered by sweeping, dusting, etc., the organisms do not remain long in suspension and die off within an hour in sunlight or diffuse daylight, or in about four hours in the dark. Danger of infection from powdered sputum may be avoided by free illumination and ventilation of the sick room and by the substitution of moist antiseptic cleansing for dry sweeping or dusting. Further, the experiments, as applied to the pneumococcus, support the theory largely advanced by Flügge and his coworkers—that the transfer of pathogenic bacteria from one person to another is possible by the aerial transmission of fine spray particles (Flügge's drop infection). In the act of coughing, sneezing, expectorating or talking, a pneumococcus host expels particles of sputum or saliva containing virulent pneumococci, which may remain suspended in the air for a number of hours if the ventilation of the room is good. Whether suspended or dried on surrounding objects, however, the pneumococci become harmless in about an hour and a half, while many in the spray succumb to strong light in a few minutes. This is time enough for pneumococci so expelled to become lodged in the mouth and throat of exposed persons. In the light of these experiments, it will be seen that the risk of infection is chiefly borne by those in direct contact with one harboring the pneumococcus. From the point of view of prevention, the great question seems to be how to get rid of pneumococci in the mouths and throats of persons convalescent from pneumonia.

We see that these studies concern especially the pneumococcus; they deal with one phase only of pneumococcus infection; the other side of the pneumonia question, the side presented by the patient, has not been considered.

CONTRIBUTIONS OF PHARMACOLOGY TO PHYSIOLOGY.

In his first Herter lecture[1] at the Johns Hopkins Medical School, Professor Hans Meyer of the University of Vienna calls attention to the biologic results that we owe to pharmacologic methods of investigation. He points out that drugs, i. e., chemical substances, penetrate into the interior of the body and reach parts inaccessible to scalpel and electric current, formerly the essential weapons of the experimental physiologist effecting there disturbances of function which, when correctly interpreted, throw desired light on difficult physiologic problems.

The first examples cited are the physiologic discoveries that have been made from the pharmacologic study of curara poison. Further, because it has been shown that centrifugal and centripetal nerve tracts react differently to poisons, it may be concluded that they are chemically different, although morphologically alike. Langley found that nicotin paralyzes the sympathetic ganglia and through them the preganglionic nerves, while the postganglionic escape; by this method it may be decided whether a nerve ends in a ganglion or passes through it.

From the fact that tetanus toxin, when injected into the extremity of an animal, is absorbed by the motor nerve endings and carried upward in axis cylinders into the spinal cord, we learn the hitherto unknown fact that there is constantly flowing through the axis cylinders of motor nerves a protoplasmic stream that reaches the neurocytes themselves, a fact of significance for nerve nutrition and the disturbances in central ganglia following nerve section. Meyer has found that there occurs a similar flow of diphtheria toxin in the nerves and the same thing may be true also of certain metals like lead. In case a centripetal stream like this passes along peripheral sensory nerves, its course is arrested by the spinal ganglia. If the posterior nerve roots between the ganglia and the cord are injected, however, there arises the so-called tetanus dolorosus, characterized by periodical, extremely painful seizures, thus showing the existence of special, central pain-subserving structures in the spinal cord.

As an example of the advance in knowledge of the physiology of glands made through the use of pharmacologic agents, Meyer, among other results, mentions the fact that recently Wertheimer and Lepage have shown that the pancreas possesses at least two distinct secretory mechanisms, namely, one which is excited by pilocarpin, physostigmin, or muscarin, and in this case the secretion does not contain enterokinase, and one which is stimulated by secretin and other substances, but in this case the secretion does contain enterokinase.

It has been found, further, that experiments with pilocarpin point to the secretion in the swimming bladder of fishes, of oxygen by the epithelial membrane, which differs from ordinary diffusing membranes in that it is not penetrable in either direction. Other experiments indicate that the alveolar epithelium of the lungs permits ammonia gas to pass into the blood but not outward from the blood.

The study of cardiac poisons has contributed much

1. Science, Oct. 6, 1905.

to our knowledge of the physiology of the heart, but details are not considered in this lecture.

Phloridzin diabetes and adrenalin glycosuria, the discovery of glycuronic acid in poisoning by camphor and of the relations of lactic and amido-acids to intermediary metabolism in phosphorus and arsenical poisoning are cited as illustrations of the influence of pharmacology on the study of metabolism. Indeed, numerous chemical processes of reduction and oxidation were first discovered through studies with chemical or pharmacologic agents. Herter's infusions of methylene blue have revealed with especial clearness the oxygen requirements of muscles and the avidity with which muscles appropriate oxygen from oxyhemoglobin and other reducible substances.

The degree of narcotic activity of alcohol, ether chloroform, etc., compares very closely to the solution —tension or affinity—of these substances for lipoid substances like lecithin, and it has been concluded from this that in the union of the lipoid substance with the narcotic lies the origin of narcosis and that the lipoid constitutes an integral part of the "life-center" of the cells.

Finally, Meyer dwells on the value of the pharmacologic method of study of fundamental cellular and biologic phenomena, and mentions the important results obtained by Loeb from the study of the effects of metallic ions on general life processes, particularly the production of heliotrophisms and of parthenogenesis by definite chemical agents and procedures.

From this abstract of Professor Meyer's lecture we see that pharmacology, in addition to its direct practical importance, has been the means of furthering our knowledge of various biologic processes and that by the pharmacologic method of study it seems possible slowly to reach a better insight into the chemical constitution of protoplasm and the chemical interpretation of its functions. Great interest has been taken in experimental pharmacology in this country and some of our first universities have full professorial chairs of pharmacology. On account of the general and medical importance of this branch of biology it is hoped that before long pharmacologic investigation may receive increased encouragement from the establishment of full professorships in those of our real universities in which pharmacology as yet is inadequately represented.

FAMILY TREMOR.

The occurrence of minor ailments of a hereditary character or with family grouping is of interest in connection with major diseases of a like familial distribution with which the minor ailments may possibly be interchangeable or represented in an abortive form. There are those who believe that the comparatively harmless migraine may thus be correlated with epilepsy, that periodic attacks of mental depression in healthy individuals correspond, in a sense, to the more severe periodic insanities, and that the rather rare hereditary or familial tremor may represent, *in petto,* as it were, Huntington's chorea.

Family tremor is perhaps less well known than many other family diseases, though Dana in this country was one of the first to describe it carefully. Occasional reference to the condition is found in the literature as early as the end of the eighteenth century, though the symptom-complex has been carefuly studied only in the last twenty years. Schmaltz[1] has recently called attention to the condition once more, and has reported one family in which thirteen tremblers occurred in four generations. Aside from the hereditary or familial element, the etiology of this form of tremor is obscure, though there is some evidence that the excessive use of stimulants by the ancestors of those affected may play at least a subsidiary part. A history of the immoderate use of coffee, alcohol, or tobacco in the ancestors is sometimes found, but these factors are so common and the disease so rare that some other condition must also be present. Some observers, and especially those of the French school, regard the tremor as merely one of the signs of a widespread nervous degeneration, and point out that evidence of this is usually present, though not always marked. Still, some families with the tremor may have relatives who are epileptics, or belong to that class of borderland individuals who are described as "peculiar." Sometimes the tremblers themselves exhibit signs of nervous instability, are subject to emotional crises, are intolerant of alcohol or tobacco, or are frankly neurasthenic. The disease is not transmitted, like hemophilia, from the female to the male line, but may come from either side of the house; indeed, it may appear as a family disease without transmission from the forbears, or, in rare instances, it may skip a whole generation to reappear in the descendants.

The tremor generally takes the form of a rhythmical vibration with slight excursions and a slow tempo of from three to nine movements a second. Occasionally choreiform movements may occur. The control over the tremor varies in different individuals, though in many instances it appears as an intentional tremor and may lead to the diagnosis of multiple sclerosis. Some of the patients, however, have been able to carry on occupations requiring great delicacy of touch, such as watchmaking. Häbler had a patient who was unable to raise a glass to his lips without spilling the contents, but was an excellent marksman. Psychic influences usually seem to increase the tremor. The hands are the parts mostly affected, the legs next, and lastly the face.

The condition is doubtless confused at times with the tremor of old age, or, if the tremor is of the intentional variety, with that of multiple sclerosis. Such confusion should not occur if the exquisite familial character of the affection is considered, and if the absence of disturbances of the special senses, apoplectiform seizures,

1. Münch. med. Wochft., lii, No. 14, abstracted in THE JOURNAL, June 5, 1905, page 1816.

and paresis is noted. The condition, though apparently rare, is probably not infrequently overlooked, for the disease in itself may cause but little inconvenience, especially in its milder form, and the tremor in such cases may be taken for that of alcohol or neurasthenia. Like many previously rare diseases, it will probably become more common after the attention of the profession at large has once been called to it.

CARCINOMATOUS OSTEOMALACIA.

According to Woodyatt, who describes a remarkable case of diffuse carcinomatous infiltration of the bones, with softening, in a woman of 40, the primary tumor being situated in the breast, carcinomatous bone metastases, which are of rather frequent occurrence, may develop as multiple, circumscribed nodules, in which osteoplastic processes have the upper hand, and more rarely as diffuse, soft infiltrations in which bone resorption occurs.[1] When fairly widespread, this latter form has been called carcinomatous osteomalacia (first described by Hawkins in 1841). Because carcinomatous osteomalacia, though a very rare condition, may be confounded with true osteomalacia and with ostitis deformans, it merits special notice. In six of the seven generalized cases unearthed by Woodyatt, the primary carcinoma was situated in the breast; in the seventh its seat appears to have been unknown. Whether the malacic changes in the bones in any way are due to substances elaborated by the mammary gland can not be said.

Further observations are necessary in order to determine whether carcinomatous osteomalacia is connected exclusively with carcinoma of the breast. Among the special symptoms of this form of osseous disease are rheumatic pains in the regions involved; the pains are commonly described as deep-seated and gnawing or burning in character. Sometimes there is tenderness on pressure. Eventually the bones may become pliable and great deformity ensue. Cachexia and secondary anemia develop as the result, in part at least, of carcinomatous invasion of the marrow. Numerous nucleated red corpuscles and myelocytes (6 per cent. in the cases reported by Woodyatt) may appear in the peripheral blood. Microscopically, the stroma of the osseous metastases is like that of carcinoma elsewhere. The stroma is in very clear relation to disappearing bone surfaces and fragments, but whether the bone is first softened by some chemical process and then replaced by stroma or the stroma cells attack healthy bone substance can not be definitely stated, according to Woodyatt. The rôle played by the carcinomatous cells themselves in the bone resorption is also, as yet, largely a matter of speculation. Generally there is a layer of stroma between the epithelium and the bone, so that the epithelial cells probably do not directly absorb bone.

There is no ground for the view expressed by von Recklinghausen that these cases in reality are cases of secondary bone carcinoma implanted on existing malacia. Probably there is first decalcification and softening of bone (halisteresis), the exact factors in which we do not understand, possibly it may be due to substances produced by the cancer cells, and this is then followed by removal of the changed bone by the stroma. Naturally, the exact chemical processes concerned in these complex changes as yet can not be determined.

THE GREAT AMERICAN FRAUD.

Elsewhere in this issue will be found extracts from the first paper on "patent medicines" which appears in *Collier's Weekly* October 7. We have only space for a part of the article, neither can we reproduce the illustrations, which are most telling. Physicians should read these articles and should do all they can to disseminate the contained information, especially for the reason that the public press, in the main, can be depended on to preserve a notable silence regarding the disclosures. Some points made by Mr. Adams deserve emphasis. First is the showing that fraud, well advertised, is the basis of the nostrum trade. Then, sundry folks will feel uncomfortable when they read his conclusion that testimonials are "the expression of a low order of intelligence." The most important of his disclosures is photographic evidence of the blackmailing method of suborning the public press, through the notorious "red clause" of the advertising contract, by which every country newspaper is compelled to fight against anti-nostrum legislation or at once to lose all its nostrum ads. Mr. Adams also shows how one of the best-known Chicago newspapers, in order to obtain a profitable nostrum advertisement, sent its reporters to secure "testimonials." Thus, for a little money, a daily paper of professed high ideals, active in reforming everybody else, entered into a conspiracy to swindle its readers. One of the investigator's telling points is in his inability to see any real difference between "patent medicines" and "proprietaries," and as a corollary he shows too truly that the medical press, as a whole, is as much under secret medicine control as is the daily and weekly newspaper. This layman's scorn for our subsidized medical press should stimulate us to work for a better condition of affairs.

THE PROPORTION OF NIGHT LABORS.

It is a common idea that the great proportion of labor cases terminate at night, especially after midnight. White,[1] after analyzing 1,500 cases, points out that the popular idea is probably erroneous. In his series of cases a very slight fraction over one-half terminated during the night. The difference was too slight to have any weight. As an explanation for the fallacy, he suggests that night cases, because they disturb sleep, attract more attention and make more impression than cases in the day time. He suggests the consideration of further statistics so that the truth or falsity of this popular idea may be definitely decided.

1. Trans. Chicago Path. Society, 1905, vi, 306.

1. American Journal of Obstetrics, October, 1905, p. 527.

BEHRING'S ALLEGED CURE FOR TUBERCULOSIS.

The newspaper reports concerning Professor Behring's alleged cure for tuberculosis do not contain anything that one is justified in regarding as definite or reliable. There is no basis of facts in the reports on which to build any idea as to the real nature of the curative substance. Indeed, there is no reason to believe that Professor Behring ever announced, in the manner reported, the possession of a sure cure of tuberculosis in man, the efficacy of which has been established. It is more likely that Professor Behring reported to the tuberculosis congress the results of investigations in the immunization of cattle against bovine tuberculosis with reference, perhaps, to the possible application of the same methods to human tuberculosis. Under these circumstances, we must await further developments with patience. The newspapers, naturally, have made of this all they possibly could, and we must read what is published in them with considerable allowance. The hint that Professor Behring is holding back information for commercial purposes it is hoped is not true, although the scandal connected with his name and the manufacture of Behring's antitoxin for diphtheria will be revived in the minds of many physicians.

TREES AND MALARIA.

Old notions die hard. In spite of the scientific proof of the origins of yellow fever and malaria, there are physicians in districts where these diseases abound that reject the mosquito theory and still believe in the old miasmic emanation ideas of malaria and the transmission of yellow fever through infected clothing and other articles. As for the laity, we can hardly expect them to be in advance of even the laggards of the medical profession, and in evidence of this we have the shotgun quarantine of the south and the spectacle of the governor of a state practically forcing the resignation of self-respecting health officers because they could not honorably carry out his panic-dictated directions. As regards malaria, the old notion that it is a swamp emanation still holds sway in certain quarters, as witness the following quotation from a lay journal relative to the planting of the sweet gum tree in public streets and parks. "These trees exhale a balsamic odor that is healthful and they are said to absorb malaria from the soil and convert it into healthy gases by the action of the balsam of the tree." How far the balsamic odors of these or any other trees will aid in the prevention of a mosquito pest may be a question, but there is undoubtedly a connection between tree growth and the absence of malaria in some regions, and therefore the above expressed idea, absurd as it is in a scientific point of view, has perhaps a remote sort of justification. Certain trees, like the eucalyptus, are said to act as drains to the soil and to have abolished malaria in certain regions in this way. Owing to the arrangement of their foliage, they are said to give less shade than other trees and therefore do not diminish the natural evaporation to so great an extent, but, though their special odors are, in a concentrated form, inimical to mosquitoes, their action in this particular way for reducing malaria can not, with our present knowledge, be very well estimated. The effects are perhaps sufficiently accounted for by the drying up of surface pools, etc., which accompanies their growth in large numbers. It has been proposed, indeed, to utilize the eucalyptus for this purpose along the route of the Panama canal. There is no sufficient warrant, however, for the expectation expressed by some that eucalyptus planting will eradicate malaria and control tropical floods in that region. There is need, however, of every possible aid in the combat with disease on the isthmus, and every little helps. There is no doubt that a eucalyptus forest would be far more sanitary than the natural dense tropical vegetation, especially in the conditions which follow the carrying out of such undertakings as the digging of an interoceanic canal.

LAY "MEDICAL SCIENCE AT FAULT."

One Richard Weightman, posing as a Washington correspondent of the Chicago *Tribune,* and probably of other newspapers, in times past and present has afforded much joy to medical readers of that paper by certain ponderous deliverances on things medical. Mr. Weightman is intensely antimedical, but he has no idea how funny he is at times. In the *Tribune* of October 4 he says: "The case of Captain . . . is a curious illustration of the rudeness with which destiny too often treats the best-laid horoscopes of medical science." He then relates that a naval medical board told "the captain" that he had Bright's disease, and how, after treatment and the lapse of four years, he finally passed the physical examination. "Now he 'ups and dies' of apoplexy without a word of warning from the oracles of science. Amazing are the manifestations of sapience in the various learned professions." What odd pranks does ignorance play with a man's discretion! The poor newspaper simpleton, totally ignorant of the meaning of the terms "Bright's disease" and "apoplexy," which he nevertheless presumes to use with such show of confidence, of course does not know that Bright's disease is an affection of the circulatory system as well as of the kidney and that apoplexy is one of its frequent accompaniments and terminations. Blissfully unknowing of the long-recognized and very intimate relationship between Bright's disease and apoplexy, Mr. Weightman courageously entitles his little paragraph "Medical Science at Fault." A correspondent who, before writing, ascertains what he is writing about, would be of service to the *Tribune,* but some physicians would be deprived of their morning joke.

Precautions Against Cholera in London.

The outbreak of cholera on the continent of Europe has caused Dr. Williams, health officer to the port of London sanitary authorities, to issue an order that all vessels coming from ports infected or suspected to be infected with cholera be stopped at Gravesend and visited by a health officer. Every person on board is to be medically examined before being allowed to land, subject to furnishing name and address of destination. Then the health officers of the various districts to which the passengers are proceeding are notified and keep them under inspection during the incubation period of cholera. Three health officers are engaged in the work of boarding vessels at Gravesend. Persons found suffering from symptoms even suspicious of cholera are immediately removed to the port sanitary hospital at Denton and the vessel and all infected effects are thoroughly disinfected.

Medical News

CALIFORNIA.

Fires.—The Southern California State Hospital for the Insane, Patton, had a narrow escape from a disastrous fire September 15. Damage amounting to $2,000 was done.——The residence of Dr. David B. Fields, Weaverville, was destroyed by fire September 27.

New Hospital.—Early in October the new Santa Fe Hospital, Los Angeles, will be opened for use. It is probable that it will be used jointly by the Santa Fe, Southern Pacific and Salt Lake roads. The buildings are seven in number, connected with covered passages, and have cost altogether about $200,000.

Free Clinic Established.—On October 2 a free medical and surgical clinic was opened at the hospital, Los Angeles, which is under the charge of the Sisters of Charity of St. Vincent De Paul. The surgical department is under the direction of Drs. Ernest A. Bryant and E. T. Dillon. The heads of other departments will be announced later.

Vital Statistics.—During August, 1,844 deaths were reported in the state, of which 281 were due to tuberculosis, 194 to violence, 172 to heart disease, 114 to cancer, 90 to cerebral hemorrhage, and 89 to pneumonia. About 1 death in 7 was due to tuberculosis, 1 in 11 to heart disease, 1 in 20 to cerebral hemorrhage and pneumonia, and 1 in 25 to senility, nephritis and diarrhea.

Coroners Organized.—The coroners of the southern portion of California met at Los Angeles September 18 for organization. The object of the association is to bring about collective and organized action among the coroners in studying the rights, duties and privileges of coroners so as to have proper legislation passed, to have conflict on laws in coroners' duties cleared up and corrected, and to have defects in practice eliminated.

Personal.—Dr. John I. Stephen, San Francisco, chief surgeon of the Emergency Hospital service, has been deposed and Dr. Charles F. Miller has been appointed his successor.——Dr. John D. Dameron, superintendent of the San Joaquin Hospital, near French Camp, was stabbed in the back by a patient September 21, is paralyzed from the waist down and it is feared may not recover.——Dr. Herman E. Hassey, chief surgeon for eighteen years of the Soldiers' Home Hospital, Sawtelle, has resigned.——Dr. Robert C. Howe, sanitary inspector, San Francisco, suspended under charges of being absent without leave, has resigned.

COLORADO.

Sanitarium Dedicated.—The new Evangelical Lutheran Sanitarium for Tuberculosis, north of Denver, was dedicated with appropriate ceremonies September 10.

Death and Disease in August.—Seven hundred and ninety deaths were reported during August, equivalent to an annual rate per 1,000 of 13.92. Typhoid fever caused 28 deaths and diphtheria 4. During the month 248 cases of typhoid fever were reported, an increase of 18; 31 cases of smallpox, an increase of 18; 33 cases of scarlet fever, a decrease of 1, and 24 cases of diphtheria, a decrease of 13.

Personal.—Dr. and Mrs. Albert Atwood Blackman, Colorado Springs, sailed for Germany September 5.——Dr. Ella A. Mead has been appointed city physician of Greeley.——Dr. Orson B. Adams, Pueblo, has been appointed mine surgeon for the Colorado Fuel and Iron Company, with headquarters at Tercio.——Dr. Frank A. Washburn, Boulder, has sold his interest in the Place Sanitarium to Dr. Olney G. Place.

CONNECTICUT.

Epileptic Commission Appointed.—In July last the governor appointed Drs. Max Mailhouse, New Haven; Frank K. Hallock, Cromwell, and Edwin A. Down, Hartford, a commission to investigate plans and methods for the care and treatment of epileptics, to report at the session of the legislature in 1907.

Personal.—Dr. Walter G. Murphy, East Hartford, probation officer, has resigned.——Dr. Charles James Fox, Willimantic, has removed to Hartford and announces that he has limited his practice to diseases of the digestive tract and skin.——Dr. Anthony J. Hill, Torrington, has returned after a year in Ireland.

Bequests.—By the terms of the will of the late Mrs. Mary A. Stevens, Danbury, the bulk of her estate will eventually go to the Danbury Hospital for an addition to the institution, to be known as the Darius Stevens annex. There is a prospect, however, that the will may be contested.——Mrs. Edward R. Harkness, New London, has donated $1,000 to the Memorial Hospital, to be expended in the improvement of the sanitary equipment of the preparatory and operating rooms.

DELAWARE.

Cost of Typhoid.—In a letter prepared by the chief engineer of the water department of Wilmington, asking for an extraordinary appropriation to be used in the construction of a permanent filtration system for the city, he alleges that the annual loss to the community from typhoid fever exceeds $280,000.

Personal.—Dr. James A. Draper, Jr., has been elected a member of the surgical staff of the Delaware Hospital, Wilmington, vice Dr. Howard Ogle, deceased.——Drs. Albert Robin and Harold L. Springer have been elected pathologists and members of the staff of the Delaware Hospital.——Dr. Joseph H. Chandler, a lifelong resident of Centerville, has moved to Wilmington.

Donations for Hospital.—Mrs. Julia E. Gibbons and her daughter, Mrs. George A. Elliott, have presented $5,000 to the Delaware Hospital, Wilmington, to endow a memorial bed for the late Richard P. Gibbons.——Mrs. Alexis I. Dupont and her children have completed a laboratory for the hospital, and Mrs. Eugene Dupont has changed the Bush ward into a lecture room at her own expense.

DISTRICT OF COLUMBIA.

Transferred to the Government.—The tract of land near the district line, which has been selected as a site for the Army General Hospital, Washington, was formally transferred September 8. The consideration was $98,222.90.

Personal.—Dr. and Mrs. H. L. E. Johnson returned from a trip to the Pacific Coast, Alaska and Canada September 17.——Dr. Hirschel Baldwin has been appointed resident physician and superintendent of the Eastern Dispensary and Casualty Hospital, Washington.

GEORGIA.

Fire at Glennville.—A fire in Glennville September 27 destroyed the storehouse of Dr. F. R. Cross and the office of Dr. W. H. Mann.

Personal.—Dr. Maury M. Stapler, Macon, returned from Europe October 4.——Dr. Claude A. Smith, Atlanta, has been elected city bacteriologist and chemist, vice Dr. Henry F. Harris.——William E. Braswell, Loganville, has been given a beneficiary scholarship in the department of medicine of the University of Georgia, Augusta.

ILLINOIS.

School Closes.—The Emerson school of Bloomington has been closed on account of an epidemic of diphtheria.

New Hospital.—The contract for building the proposed Catholic Hospital at Taylorville has been let for $18,058. The hospital is to be completed on or before Feb. 1, 1906.

Typhoid at Pana.—An epidemic of typhoid is reported to be raging in the German settlement northeast of Pana. The infection is said to be due to the use of ice from an infected pond.

Releases Mortgage.—Matthias Schnell of Rock Island, who took a mortgage from the Sisters of St. Anthony's Hospital for $10,000 in 1904, entered release of the mortgage September 25.

Physician Wins Suit.—In the case of Katie Helen against Dr. T. J. McKinney, Gifford, in which damages to the extent of $5,000 were claimed by the plaintiff for malpractice, the jury found for the defendant.

Hospital Plan Rejected.—At a meeting of the Fairhope Improvement Association October 3 in Oak Park, a resolution was adopted to block further progress of the Oak Park Hospital Association toward accepting the offer submitted by Dr. J. W. Tope to buy the property and turn it over to Catholic sisters for a hospital.

Personal.—Dr. W. L. Wylie, Sparta, has returned from a visit to Colorado.——Dr. B. C. Green, Keithsburg, is convalescing from injuries received some weeks ago by being thrown from a fractious horse.——Dr. J. H. Porter, Clinton, was operated on September 28 in Chicago for cholelithiasis.——Dr. J. W. Morgan, Moline, has returned to the city after a year in the Southwest.——Dr. H. W. Wayles, Lennock, is reported to be failing rapidly in Pennsylvania, where he is a patient.——Dr. E. C. Aeley, Quincy, has returned from Portland, Ore.——Dr. Martin W. Cushing, Joliet, had a slight cerebral hemorrhage October 4.

Chicago.

Annual Gynecological Society Meeting.—The twenty-seventh annual meeting will be held at the Auditorium Annex, October 20, at 8 p. m. The business meeting and election of officers will be followed by the banquet.

Personal.—Dr. N. Ellis Oliver has gone to England for a trip of six weeks.——Dr. J. R. Lynch was robbed of his watch by holdup men September 30.——Dr. and Mrs. Cole, Englewood, will soon leave for Los Angeles for the winter.

New Hospital Planned.—The directors of the Chicago Lying-in Hospital are planning the erection of a new hospital to cost $250,000 as the present quarters are entirely inadequate. The proposed new hospital will have accommodations for about seventy patients and will possess facilities for handling cases from all grades of society, the main object being to establish a place where wives of the wage earners can be cared for at slight expense.

Months of Low Death Rate.—October and November are the two months of lowest death rates in Chicago, and October has opened with satisfactory promise. For the week ended October 7 the death rate was at the annual rate of 12.36 per 1,000, which is considerably lower than the average October rate for the decade 1895-1904, which was 13.16 per 1,000. Of the total deaths reported the indicated decreases as compared with the previous week are: Typhoid fever, suicide and whooping cough, each 3; diphtheria, 4; apoplexy and tuberculosis, each 5, and acute intestinal disease, 8.

The Summer Mortality.—During the summer of 1905, which ended September 23, 6,889 deaths occurred, or 794 more than in the summer of 1904, the respective annual death rates per 1,000 being 13.24 and 12.24. Of children under 1 year, 1,837 died in 1905 and 1,478 in 1904; of children between 1 and 5, 717 in 1905 and 522 in 1904; and of individuals over 60 years, 1,117 died in 1905 an 1,058 in 1904. The most important causes of death were: Acute intestinal diseases, consumption, 732; violence, including suicide, 599; heart diseases, 521; Bright's disease, 472; pneumonia, 383; and cancer, 311.

INDIANA.

New Sanitarium.—A site has been purchased in Princeton, on which a sanitarium is to be erected, to cost $20,000. Drs. Franklin Blair, A. Ziliak and Robert S. Anderson are the promoters of the enterprise.

Illegal Practitioner Fined.—Gilbert Williams, charged with practicing medicine without a license in Evansville, was fined $20 and costs September 22. He says he will appeal the case. He has been practicing with his brother under the firm name of "the Dr. Bert Company."

Physician Goes to Prison.—Dr. Charles L. Landfair, Bluffton, sentenced to the penitentiary for a term of from three to fourteen years and to pay a fine of $100 for criminal malpractice, was taken to the Indiana northern penitentiary, Michigan City, September 23.

Personal.—Dr. Charles C. Morris, Rockville, has taken a trip to Portland, Ore.——Dr. Sherman B. Hitt, Greensburg, was the lucky holder of a ticket entitling him to a $600 automobile at the drawing held September 25.——Dr. John P. Salb, Jasper, has been appointed division surgeon for the Southern Railway.——Dr. Albert E. Powell, Marion, is in a serious condition since his return from Toledo, where he underwent operation.

IOWA.

Raises Fee for Itinerants.—Dubuque has raised the license fee for traveling doctors to $5 a day, or $150 a month.

The Last of Kraus.—The notorious itinerant, who calls himself "Phenomenal Kraus," and his associates, have agreed to abandon Des Moines and Polk County as a field for the sale of their nostrums and their alleged miraculous cures, provided the cases pending against them be dropped. They agree to pay all costs incurred.

Law Defense Company.—A corporation—the Law Defense Company—has recently been incorporated with a capital of $100,000, whose object is to protect doctors, lawyers and dentists against damage suits, as well as individuals and corportations against various kinds of legal prosecutions. Only the expense and trouble of litigation, not judgments and damages, are to be insured against.

Washington County Medical Society.—The annual meeting of this society was held September 19. The program included papers on "Chylous Ascites," "Appendicitis," "Artificial Feeding of Infants" and "Pneumonia." In the evening a public lecture was given on "Food and Drug Adulterations." The following officers were elected for the ensuing year: President, Dr. William H. McCaw, Winfield; vice-president, Dr. Emmett T. Wickham, Washington; secretary, Dr. Clyde A. Boice, Washington (re-elected).

MARYLAND.

Personal.—Prof. Hans Horst Meyer, the Herter lecturer at the Johns Hopkins University, with his two sons, was the guest of Prof. J. J. Abell during his stay in Baltimore last week.——Dr. S. Suzuki of the Imperial Japanese navy was the guest of Dr. William S. Halstead at Baltimore October 7, and inspected the Naval Academy at Annapolis on October 8.——Prof. Harry Friedenwald delivered the opening address at the College of Physicians and Surgeons, the evening of October 3.

Diphtheria.—The epidemic of diphtheria at the Naval Academy, Annapolis, is abating. Between 40 and 50 of the midshipmen are still receiving treatment at the hospital, but there have been no new cases for several days. The midshipmen are improving as well as the two marine officers at the Marine Barracks, and a young child of one of the naval officers. The quarantine restrictions placed in force by Rear Admiral Sands will not be raised until a few days before October 16.

Health Report.—The health report of Baltimore for September shows 813 deaths and but 800 births, 293 (36.04 per cent.) of the former occurring in children under 5 years. Some singular contrasts are seen, viz., while 327 white males and 282 white females died, the corresponding numbers among the colored were 94 and 110; again, of the births there were 303 white males, 340 white females, 78 colored males and 79 colored females. There were 198 cases of typhoid reported and 79 cases of tuberculosis. The figures for September, 1904, being, respectively, 128 and 47. Measles, whooping cough and pneumonia are on the increase.

MASSACHUSETTS.

Changes at Harvard.—Dr. Chauncy Williams Norton has resigned as assistant in anatomy at the Harvard Medical School. Franz Pfaff, M.D., has been appointed professor of pharmacology and therapeutics. The administrative board for 1905-1906 will be: William Lambert Richardson, dean; John Collins Warren, Frederick Cheever Shattuck, William Fiske Whitney, Charles Montraville Green, Charles Harrington, Frany Burt Mallory, Walter Bradford Cannon and John Warren.

Springfield's Typhoid.—Springfield has been having an epidemic of typhoid fever. About 140 cases have occurred since August 1. Dr. George B. Magrath was sent as an expert from Boston by the State Board of Health, and his investigations make it probable that the street venders and push-cart peddlers of fruits, vegetables and other food materials are responsible for the spread of the disease. For the earliest cases occurred in their families and the local board of health has found a condition of great filth on the two streets where most of them live.

MICHIGAN.

City Accepts Hospital.—The city council of Flint has formally accepted the bequest of $25,000 and a tract of land left to the city by the late James J. Hurley for a public hospital.

Sanitarium Organized.—The Marine City Sanitarium was organized September 23 with a capital stock of $60,000. Dr. Robert B. Baird was elected president of the board of directors.

Off to Prison.—Dr. Scott F. Hodge, Detroit, convicted of manslaughter in connection with the death of Anna Lehman, in an attempt to produce abortion, was taken to the state penitentiary at Ionia September 22 to serve an indeterminate term of imprisonment of six to nine years.

Question of License.—W. H. Griswold, Battle Creek, charged with practicing medicine without a license, who in his appeal claimed that as he had been in practice prior to the enactment of the amendment of the law of 1903 he was not obliged to take out a license, was non-suited by the Supreme Court September 22.

Dr. Hull's Will.—The will of the late Dr. Harry D. Hull, Adrian, provides for a $3,000 lavatory, and creates a fund to keep in repair neglected monuments and markers in Oakwoods Cemetery. A provision in the will also directs that all accounts against patients, except those which would go to offset creditors' accounts, be marked off his books.

Medical Reading Room Opened.—A special reading room for physicians, nurses and medical students was opened at the Ryerson Library, Grand Rapids, September 25. In this room there are between 30 and 40 medical periodicals from America

and abroad, and a collection of more than 4,000 volumes transferred by the old medical library association. The physicians of Grand Rapids have agreed to contribute to the library not less than $50 a year for medical periodicals for a period of five years.

MINNESOTA.

New Hospital.—The new hospital at Luverne will be ready for occupancy early this month.

College Opens.—The eighteenth annual session of the College of Medicine and Surgery, University of Minnesota, Minneapolis, opened September 19. Dr. Arthur Sweeney, St. Paul, delivered the opening address on "Ideals in Medicine."

Physiciain Acquitted.—Dr. Malcolm McKinnon, Fosston, who was charged with criminal assault, was discharged at his preliminary examination, the defense showing that the complaining witness was in a state of hysteria and was wholly irresponsible.

Plan Postgraduate Work.—At a meeting of the St. Louis County Medical Society at Duluth a plan was discussed to form a medical study academy to take up postgraduate subjects. It is proposed to include the practitioners of Superior and the Iron Range in this work.

The Afflicted.—"Dr." Michael Mitchell, who was in trouble with the authorities of Washington County on account of practicing medicine without a license, died insane at the Stillwater Hospital September 17.——Dr. Edward J. Clark, Minneapolis, while shooting near Rush City, received a heavy charge of birdshot in the palm of the left hand by the accidental discharge of a gun, and will be deprived of the use of the hand for a considerable time, if not permanently.

Personal.—Dr. John B. Town, Hibbing, has resigned from his position on the staff of the Rood Hospital and will practice in Topeka, Kan.——Dr. George Crossette, Minneapolis, has taken a position on the staff of the Rood Hospital, Hibbing.——Dr. Harry K. Reed, Minneapolis, will soon remove to Hibbing and associate himself with the Rood Hospital.——Dr. Alexander H. Dunlap, Crookston, has been appointed physician of Polk County.——Dr. E. W. Gagg has been appointed physician of Breckenridge, vice Dr. L. W. Armstrong, resigned.——Dr. Ernest A. Woods, Clear Lake, has moved to California.

MISSOURI.

College Opens.—Ensworth-Central Medical College, St. Joseph, opened for its annual session September 19. Mr. George L. Zwick delivered the address of the evening.

Appropriation for Quarantine Hospital.—The House of Delegates, October 3, passed a council bill appropriating $75,000 for the construction of a municipal quarantine hospital south of St. Louis.

Illegal Practitioner in Jail.—"Dr." J. T. Davis, Harrisonville, was arrested at Pleasant Hill October 3 for practicing medicine without a license. He was unable to pay his fine of $50 and costs and is now serving his time in the county jail.

Hospital Employes Poisoned.—Nearly 100 employes of the St. Louis City Hospital, doctors, nurses, attendants and clerks, were taken violently ill with ptomain poisoning September 30, due, it is supposed, to infected milk or oysters. All, however, recovered.

Cost of City Hospital.—The cost of the new city hospital at St. Louis up to date is stated to have been $657,732.72, divided as follows: Past construction, $573,991.62; pathologic building, $39,046; fence, $4,910.10; administration building, $34,785, and grading, $5,000.

Typhoid at State University.—After investigating the typhoid fever situation at Columbia, the State Board of Health issued a statement that there was no occasion for alarm among students and commending the action of the city authorities in the campaign for sanitation.

Small Proportion of Claim Allowed.—In the suit of Dr. David S. Booth, St. Louis, against the estate of the late Dr. Washington West, in which a claim of $10,000 was made for professional service rendered to Dr. West and to a guest of his, the probate judge allowed settlement for $750 September 14.

Personal.—Dr. Charles E. Gimbel, St. Louis, has been committed to the insane department of the County Hospital, Denver.——Dr. Frank Riley, St. Joseph, suffered a cerebral hemorrhage September 25.——Mrs. Edward C. Runge, widow of the late Dr. Runge, has been appointed librarian of the St. Louis Medical College, and has been put in charge of the co-operative store at the college.

Buchanan County's Insane.—Dr. Charles R. Woodson, superintendent of State Hospital No. 2, St. Joseph, who is charged with using county funds for state purposes and with charging Buchanan County excessive rates for the support of patients, and who on September 11 demanded immediate payment of bills due the hospital from the county, declaring that unless the bills were paid by 11 a. m., September 12, he would turn the 200 indigent insane from the county out of the hospital, received a warrant on that date from the county for $12,233.80, which, on presentation to the county treasurer, was returned stamped "not paid for lack of funds." The warrant was accordingly sent to protest.

NEW JERSEY.

Finding Adulterated Milk.—Much adulterated milk is being found by the pure food inspectors in their work in different parts of the state. Their last monthly report shows that 437 specimens were collected, of which 121 were found to be adulterated. Out of 32 samples of cream 8 showed adulterations.

NEW YORK.

Personal.—Burglars entered the home of Dr. J. Carl Schmuck at Lawrence, L. I., on October 3 and carried away silverware and valuables worth about $2,000.

The Work of Consolidation.—Dr. Joseph D. Bryant, president of the Medical Society of the State of New York, and Dr. J. Riddle Goffe, president of the New York State Medical Association, have each sent letters to the members of the respective bodies, stating that after consolidation of the Medical Society of the State of New York with the New York State Medical Association all members of the consolidated body in good standing will be entitled to vote on the question of the Principles of Medical Ethics of the American Medical Association when ordered by the court, as provided in section 7, which states that it is covenanted and agreed by the parties hereto that as soon as practicable after the entry of an order for the consolidation of the corporations the following proposition shall be submitted by referendum to the vote of the members of the society, namely: "The Principles of Medical Ethics of the American Medical Association being suggestive and advisory, shall be the guide of members in their relations to each other and to the public." A copy of the Principles of Medical Ethics, adopted unanimously at the annual session of the American Medical Association, held in New Orelans, was enclosed with the letter.

State's Mortality Higher.—The State Department of Health reports that the mortality of the state in August exceeded by 1,000 the average mortality for that month in the last seven years, which is 10,800. The July mortality exceeded the average by 1,300. This large increase was due to local diseases and general diseases which are not epidemic. There was a considerable increase in the number of deaths from whooping cough and typhoid fever. Since the first of January there had been 60,000 cases of typhoid fever in this state, with 500 deaths from this cause alone in Greater New York. This is attributed to the increased volume of sewage pouring into the streams of the state. It will be the fixed policy of the state health department hereafter not to grant any permits to discharge sewage into public waters, except where imperatively necessary. It was thought that summer resorts were polluting the lakes and streams and a systematic investigation of these resorts would be made. Of the total number of deaths for the month of August, 1,090 were from consumption, 10 per cent. of the whole number. The report urges the registration of all consumptives with the local health boards. It is noteworthy that while the urban mortality was 1,200 less in August than in July, the deaths in rural towns were increased by almost 10 per cent., and their diarrheal mortality was increased by 60 per cent. from that of July.

New York City.

Fewer Medical Students.—The registration in the School of Medicine of Columbia University shows a falling off from last year, there being a decrease of 107 in the number of matriculates.

Personal.—Dr. and Mrs. William T. Bull will sail for Europe on October 10.——Dr. and Mrs. John G. Perry sailed for Europe on the *Koenig Albert* on October 5.——Dr. A. J. McCosh arrived on the *Kaiser Wilhelm* on October 3.

Low Death Rate for City.—The weekly figures of mortality show that in the week ended September 30 the death rate was lower than ever before for that time of year. The rate was 15.75 per 1,000, as against 17.14 for the corresponding week of 1904. In the borough of Richmond there were only 10 deaths.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended September 30, 380 cases of tuber-

culosis, with 146 deaths; 171 cases of diphtheria and croup, with 18 deaths; 113 cases of typhoid, with 24 deaths; 73 cases of measles, with 2 deaths; 51 cases of scarlet fever, with 5 deaths; 2 cases of cerebrospinal meningitis, with 5 deaths, and 23 cases of varicella.

Fresh Air Season Ends.—The New York Association for Improving the Condition of the Poor reports that during the season which closed October 4, 3,900 women and children have had ten days on the beach, 15,500 enjoyed day excursions, and 165 sick wage earners were boarded in the country for two weeks or more. The work for tuberculous crippled children will be continued through the winter, $30,000 having already been offered toward the permanent hospital.

New Laboratory.—The capacity of the New York University Medical School, which opened October 4, has been greatly increased by the completion of the new laboratory, which is six stories in height and adjoins the college building. This made it possible to admit an unexpectedly large freshman class this year. More than 1,000,000 cases were treated last year in the clinic connected with the college, and this building will also permit of the extension of this work.

Danger in Brooklyn Water.—The Health Department has published a statement regarding the results of the analysis of samples of Brooklyn waters which show the presence of the colon bacilli. The report states that the dangers of the situation are not so much in present conditions as in the fact that they are forerunners of serious conditions which may obtain at any time. Sand filtration is the remedy suggested, and until this can be effected home filtration and boiling are recommended.

Unclean Bakeries.—Announcement has been made that the Board of Health, in connection with a delegation of the Central Federated Union, had inspected forty-two bakeries in Manhattan and that a large majority of them were found in an unsanitary condition. The health commissioner stated that he had made plans to have every bakery in Greater New York inspected and those that were found insanitary would have to comply with the law. It is alleged that out of 2,000 bakeries in New York 400 are in an insanitary condition. The inspectors have found no bakers suffering from tuberculosis so far.

Board of Health Wants More Money.—The day before Dr. Darlington appeared before the board of estimate to ask for an appropriation of $2,516,396, as against $1,685,077 allowed last year, he sent a special delivery letter to each member of the board of estimate explaining the urgent necessity for the increase that he asked. The additional funds were not asked for the purpose of increasing any salaries, but for medical school inspection. Dr. Darlington met some opposition in the person of Comptroller Grout, who claimed that the department was trying to do more work than the law required, and that they did not have authority to go into all the schools and examine the children.

Summer Milk Depots Closed.—Most of the Nathan Straus pasteurized milk depots have been closed for the season. The maximum capacity of the laboratory was reached this summer, and the necessity for enlarged facilities for the immediate future is apparent. So far this year there have been 2,668,397 bottles of milk dispensed, as against 2,149,194 for the previous year. The Health Department statistics show that the death rate among children under 5 years of age in 1890, previous to the use of pasteurized milk by the poor, was 96 per 1,000, while for the year 1904 the rate was 63 per 1,000. A movement is on foot to have the work of supplying pasteurized milk so extended as to include practically the entire supply of the infant population. It is expected that the city or state will shortly take up the question.

Report of Health Department.—The report from the Health Department for the first six months of 1905 shows that the number of inspections made by officers of the sanitary bureau was 999,658, against 799,161 in 1904; 8,668 nuisances were abated by personal effort of the inspectors. Under the child labor law, which assigns to the department of health the issuance of certificates permitting the employment of children between the ages of 14 and 16, 6,700 certificates were issued and about 2,000 applications rejected. Thirteen thousand mercantile establishments have been inspected. There was a diminution in the number of contagious diseases reported, 17,456 being reported, as against 39,114 for the corresponding period of the previous year. The report estimates that 25 per cent. of the children in the schools are suffering from morbid conditions that interfere with their development. Although the work of inspecting the schools is very rigid, only 10,585 children were excluded from the schools between January and July, as opposed to 51,644 who were excluded in the first months of 1903. The death rate for the first six months of 1905 was 19.03 per 1,000, as against 22.24 in the previous year. This death rate corrected on the recent population of New York would be only a little over 17. The report emphasizes the necessity of preventing expectoration in public places, and recommends that inspectors be better paid.

OHIO.

College Opens.—The Cleveland College of Physicians and Surgeons opened September 20.——Dr. Milton J. Lichty delivered the address of the evening.

Physician Acquitted.—Dr. Lucien W. McKinley, Columbus, bound over to the grand jury for causing, as alleged, the death of Carrie Bennett, by an illegal operation, was not indicted by the grand jury.

Tuberculosis Clinic a Success.—The clinic for tuberculosis recently opened at Cleveland has proven to be so popular that at present more than 60 patients are under treatment and it seems probable that branches must be opened in various parts of the city to provide for those applying for treatment.

Objects to Advertising.—At a meeting of the Ottawa County Medical Society September 13 a resolution was adopted that the names of attending physicians be omitted from all newspaper reports of injuries or sickness, because of incorrect and often exaggerated reports in the newspapers and because it is considered contrary to medical ethics for physicians to advertise.

Hospital Staff Changes.—At a special meeting of the medical and surgical staff of the Mahoning Valley Hospital at Youngtown, September 26, Dr. Howard B. Hills was elected president to succeed the late Dr. Jared E. Cohen; Dr. William E. Ranz was elected head of the surgical staff and Dr. Elmer W. Coe, assistant. Dr. John MacCurdy was elected vice-president; Dr. Thomas J. Arundel, secretary, and Dr. Howard B. Hills, chairman of the training school committee.

Right of Way for Toledo Physicians.—Dr. A. D. Hobart, Toledo, Ohio, during his last weeks in the city council, framed and had passed an ordinance "granting to physicians and ambulances the right of way in the city of Toledo, Ohio." The badges, selected by a committee of the Academy of Medicine of Toledo and Lucas County, with the approval of the city clerk, have arrived and are being purchased by the physicians who drive carriages. This is the first ordinance in Toledo for the protection of the medical profession of the city.

Condemns Water Supply.—At the meeting of Lake County Medical Society, Paynesville, Dr. William T. Miller, Cleveland, member of the State Board of Health, read a paper on "Water Filtration," with particular reference to the conditions which obtained at Paynesville. He declared that the outlet of sewage system of Cleveland was only about seventeen miles from the place from which Paynesville obtains its supply of drinking water and that within three hours the sewage of Cleveland would at times reach Paynesville. The members of the society were unanimous in condemning the present plan of emptying waste matter either into the river or the lake.

Personal.—Dr. Martin L. Williams, Warren, is seriously ill with pneumonia.——Dr. William J. Taylor, East Liverpool, has resigned as city physician.——Dr. and Mrs. George F. Brubaker, Springfield, returned this month from an extended stay in California and the West.——Dr. and Mrs. Bryant M. Tower, Conneaut, have returned from Colorado Springs.——Dr. Charles S. Green, Fostoria, was thrown from his buggy in a runaway accident and sustained a fractured rib and severe cuts and contusions.——Dr. Jerome Bland, Bucyrus, who has been seriously ill for a long time, is now convalescent.——Dr. B. Decatur Smith, Cincinnati, has been appointed surgeon for the C., H. & D. R. R., Pere Marquette System and C., C. & L. R. R.——Dr. Leo Danziger, Cincinnati, is critically ill at the Deaconess Hospital.——Dr. and Mrs. E. Luther Trimmer, East Liverpool, have moved to San Luis Obispo, Cal.——Dr. James H. Lowe and family, Piqua, who have been making a trip through the West, returned September 25.——Dr. William H. Booth, Salem, is making a good recovery from typhoid fever.——Dr. Orville A. Rhoads and family, Salem, expect to leave soon for a winter's trip to the Pacific Coast and the South.——Dr. Marion Squire, Randolph, sustained severe bruises in a runaway accident at Ravenna, September 28.

OREGON.

Personal.—Dr. F. Cauthorn has been appointed city physician of Portland.

Pays Dividend on Subscription.—The committee of arrangements of the Portland session of the American Medical Association has returned to its subscribers a dividend of 51 per cent.

College Opened.—The medical department of the Oregon State University, Portland, opened September 17. Dr. Simeon E. Josephi delivered the opening address. Dr. O. P. Wright has succeeded the late Dr. Alexander D. McKenzie as lecturer on clinical medicine; Mr. W. L. Brewster succeeds Mr. Fenton as lecturer on medical jurisprudence; Drs. L. H. Hamilton and Frank M. Taylor have been added to the faculty as lecturers on electro-therapeutics and demonstrators of electricity and *x*-ray therapeutics, and Dr. George S. Whiteside has been appointed lecturer on genitourinary and skin diseases.

PENNSYLVANIA.

Money for Hospital.—The Lancaster General Hospital was the recipient of a gift of $10,000 from Mrs. Mary L. Bear to endow a bed to the memory of her husband, Reuben F. Bear, deceased.

Philadelphia.

Charity Hospital Report.—In Charity Hospital during September 1,062 patients were treated and 754 prescriptions compounded.

New Ambulance for Samaritan Hospital.—The Women's Samaritan Club of Tioga, by a series of enterprises, secured funds sufficient to purchase the new ambulance for the Samaritan Hospital. The ambulance was presented by the club October 2.

To Enlarge Hospital.—Efforts are being made by the officials of the American Hospital for Diseases of the Stomach to enlarge the institution considerably. The present building accommodates 30 patients, but by the establishment of the present plan of enlargement many more can be cared for. The staff of the institution is composed of Drs. John B. Deaver, Lewis Brinton, John B. Shober, Sherbourne W. Dougherty, James Thorington and Ludwig Loeb.

Health Report.—The deaths reported last week numbered 404. This is an increase of 20 over the number reported the previous week, and an increase of 20 over the number reported in the corresponding period of last year. The principal causes of death were: Typhoid fever, 16; whooping cough, 7; diphtheria, 7; pulmonary tuberculosis, 39; cancer, 16; apoplexy, 22; heart disease, 63; acute respiratory disease, 21; enteritis (under 2 years), 35; enteritis (over 2 years), 7; Bright's disease, 30; accidents, 22; marasmus, 12. There were 191 cases of contagious disease reported, with 28 deaths, as compared with 161 cases and 18 deaths for the previous week. The new contagious diseases reported were as follows: Diphtheria, 70; scarlet fever, 29; typhoid fever, 92.

TEXAS.

Typhoid in Krum.—More than 40 cases of typhoid have developed in Krum during the last six weeks, and 6 deaths have occurred.

Damage by Fire.—In a fire at Houston September 18 the residence of Dr. Jacob H. Sampson was burned to the ground, the loss being $10,000, on which an insurance of $8,000 was carried.

Hospital for Houston.—George H. Hermann of Houston has given a block of land and $20,000 in cash for the establishment of a charity hospital in the city. Mrs. E. N. Gray and Mrs. T. W. House are soliciting the donation of an additional $20,000, which, with the amount already received, will be sufficient to erect and equip the institution. Three thousand dollars have already been secured toward the $20,000 required.

College News.—The building committee of the Fort Worth Medical University is preparing plans for the new college building to be erected at a cost of about $50,000. The sessions for the fall term, which opens this week, will be held in the old building.——The medical department of the University of Texas opened for its annual session October 2.——The new building for the Southwestern University Medical College, Dallas, was formally dedicated at the opening of the college year, October 3.

To Inspect School Children.—The president of the Dallas school board has appointed the following physicians as medical inspectors of schools to serve for one year: Drs. Scurry L. Terrell, W. E. Howard, Robert S. Yancey, Edward H. Cary, Theo. L. E. Arnold and Martin E. Taber. He has also appointed an advisory board consisting of Drs. John B. Smoot, J. Wilbur Bourland and T. M. Hackler. The inauguration of the work will be under the supervision of Dr. Frank J. Hall of the school board.

Personal.—Dr. Thomas W. Crowder, Sherman, was painfully burned in the right hand and arm while extinguishing a fire in his house September 4.——Dr. Edwin B. Smyth, Mart, was fined $100 in the county court September 15 for false imprisonment, the prosecution growing out of an arrest made on Dr. Smyth's order while he was serving as a judge at the election of high school trustes.——Dr. Benjamin M. Worsham, Austin, superintendent of the State Lunatic Asylum, is ill with appendicitis and an operation will probably be necessary.

VERMONT.

State Society Meeting.—The annual meeting of the Vermont Medical Society was held at the new college building, Burlington, October 12 and 13.

Gives State a Sanatorium.—Senator Redfield Proctor of Vermont, in a letter to Dr. William N. Bryant, Ludlow, secretary of the Vermont State Tuberculosis Commission, states that he will purchase a site for a state sanatorium for the treatment of incipient tuberculosis, erect a building to the cost of about $50,000, and endow it with $10,000, and as soon as the site is obtained will formally transfer it to the state board and will pay over the endowment fund as soon as the organization is ready to receive and invest it.

Personal.—Dr. W. T. Slayton has been appointed health officer for the town of Morristown and the village of Morrisville, vice Dr. C. C. Rublee, deceased.——Drs. F. S. Arnold and Marshall C. Twitchell have been appointed to the staff of the Fannie Allen Hospital, Burlington, in the eye, ear and throat department.——Dr. Clayton G. Andrews, Waterbury, for six years first assistant physician of the State Hospital for the Insane, has resigned, to take effect September 30.——Dr. Don D. Grout, Waterbury, has been elected superintendent of the State Hospital for the Insane, vice Dr. Marcello Hutchinson, resigned.——Dr. G. Carlton Berkley has been elected president, and Dr. John Gibson, secretary, of the St. Albans hospital medical board.——Dr. Waldo J. Upton, Waterbury, has been appointed assistant superintendent of the State Hospital for the Insane.

VIRGINIA.

State Society Meets.—The twenty-sixth annual session of the Medical Society of Virginia will be held in the Y. M. C. A. building, Norfolk, October 24-27, under the presidency of Dr. William S. Christian, Urbana.

Personal.—Dr. John F. Winn has been appointed professor of obstetrics in University College of Medicine, Richmond.——Dr. John P. Davidson, Richmond, has returned from England.——Dr. McM. Monroe Moran, Pinner's Point, has been appointed surgeon to the Atlantic Coast Line Railway.

Colleges Opened.—The Medical College of Virginia, Richmond, opened for its annual session September 26. Dr. Christopher Tompkins delivered the opening address.——The University College of Medicine, Richmond, formally opened for the year September 26. Dr. G. Paul La Roque, the new instructor in practical surgery at the college, has moved from Kingston, N. C., to Richmond.

WISCONSIN.

Pleads Guilty.—"Dr." Anna Regha, Kenosha, was arraigned in the circuit court, Racine, September 18, on the charge of committing a criminal operation and of conspiring to have a patient leave the state. She pleaded guilty to both charges and was fined $600 and costs.

College Opened.—The Wisconsin College of Physicians and Surgeons opened its thirteenth year September 19. The introductory lecture was given by Dr. Albert W. Myers. Dr. V. H. Bassett has been appointed professor of histology and pathology, with Dr. Newton Wason as his assistant. Drs. G. Frederick Shimmonek and Arthur Ritman have also been added to the faculty.

Personal.—Dr. Otto H. Forster has been appointed dermatologist to the Milwaukee Children's Free Hospital, vice Dr. Louis F. Frank, placed on the consulting staff. Dr. F. E. Walbridge has also been transferred to the consulting staff.——Dr. Hugo Philer, Waukesha, has been elected surgeon-general of the Grand Army of the Republic.——Dr. Friend C. Suiter, La Crosse, was robbed of a wallet containing $600 and valuable papers at the County Fair grounds, West Salem, September 7.——Dr. James T. Reeve, Appleton, completed the semi-centennial of his professional life September 3.—— Dr. Moses J. White, Milwaukee, superintendent of the County Hospital for the Insane, has returned from Portland, Ore.——Capt. Edgar C. Barnes, M.D., Ripon, has been appointed major-surgeon of the Second Infantry, W. N. G., vice Major F. C. Moulding, Watertown, resigned.——Dr. Thomas R. Hastings, Lime Ridge, has returned from a visit to Utah.——Dr. August F. Schoen, Mayville, has returned from Europe.

GENERAL.

American Academy of Medicine.—The thirtieth annual meeting will be held in Chicago Nov. 9-10, 1905. Committees will report on medical practice acts, teaching of hygiene in the public schools, and the collegiate degrees. The program includes the following papers: "Altruism in the Medical Profession," being the annual president's address, by Dr. Winfield S. Hall, Chicago; "Maturation and Senility," by Dr. A. L. Benedict, Buffalo; "The Medical Features of the Papyrus Ebers," by Dr. Carl von Klein, Chicago, and a symposium on "The Influence of Recreation on the Individual and the Community from Medical and Sociologic Standpoints," in which series the following papers are promised: "The Physiology of Recreation," by Dr. G. W. McCaskey, Fort Wayne, Ind.; "Recreation in Its Influence on the Nervous System," by Dr. W. J. Herdman, Ann Arbor, Mich.; "The Ceremonial and Festa in the Organized Recreation of Larger Groups of Individuals," by Dr. Bayard Holmes, Chicago; "The Relation of Recreation to Education," by Prof. Robert K. Row, Berwyn, Ill. Not only physicians but others interested will be welcome at the open sessions, which are to be held November 9 at 11 a. m., committee reports and discussion; at 8 p. m., president's address; and November 10 at 10:30 a. m., the other papers above mentioned and discussion thereon.

Cholera in Manila.—Several cases of cholera have been reported in Manila from various parts of the city and Bilibid prison. The source of the infection is being investigated, and the board of health is doing everything possible to control the situation. Outgoing quarantine has been imposed on all vessels leaving Manila for other ports in the islands or in the United States.

Health of Cuba.—Acting Assistant Surgeon Delgado of the Public Health and Marine-Hospital Service reports that there are still many cases of dengue in Havana and a few cases of typhoid, but no pernicious anemia. There are no yellow fever cases or suspects in the city. The epidemic of dengue which prevailed in Havana has spread to Matanzas and is spreading to every section of that town.

Harvey Society Lectures.—The Harvey Society of New York, described by its constitution as "a society for the diffusion of the knowledge of the medical sciences," offers the following course of lectures, to be given under the patronage of the New York Academy of Medicine:

Oct. 14. Prof. Carl von Noorden, "Modern Problems of Metabolism."
Nov. 4. Prof. F. G. Novy, "Trypanosomes."
Nov. 18. Dr. P. A. Levene, "Autolysis."
Jan. 20. Prof. W. H. Park, "A Critical Study of Serum Therapy."
Jan. 27. Prof. Lewellys F. Barker, "The Neurones."
Feb. 2. Prof. F. S. Lee, "Fatigue."
Feb. 9. Prof. L. B. Mendel, "The Formation of Uric Acid."
Feb. 16. Prof. T. H. Morgan, "The Extent and Limitations of the Power to Regenerate in Man and Other Vertebrates."
Feb. 23. Prof. Charles S. Minot, "The Nature and Cause of Old Age."
March 2. Prof. J. C. Webbster, "Modern Views Regarding Placentation."
March 9. Prof. Theobald Smith, "Some phases of Tuberculosis."
March 16. Prof. W. H. Howell, "The Cause of the Heart Beat."

The lectures will be given in the Academy of Medicine at half-past 8 on the above Saturday evenings.

Less Yellow Fever.—The general improvement continues. In the week ending October 7 there were in New Orleans 176 new cases and 22 deaths, as against 183 cases and 23 deaths in the previous week. The New Orleans hotels begin to fill with visitors. It is expected by the end of this week many quarantines will be modified and that all will be raised by November 1. There has been a slight spread of the epidemic in Mississippi, but on the whole there is good control, and not so many new cases at Natchez and Vicksburg. At Hamburg the situation has been bad. Alabama quarantined against the whole state of Mississippi. There has been a sharp war of words concerning quarantine on the Mississippi-Arkansas boundary between Dr. Hunter of the former state and Dr. Runyan of the new Arkansas Board of Health.——Dr. D. C. Anderson, who had been sent to Tallulah, La., by the State Board of Health, died of yellow fever.——The new Arkansas Board of Health, through its president, Dr. Runyan, has issued an order that no Florida oranges or other fruit shall be unloaded in Arkansas. As a result the Florida papers are hurling jibes at Dr. Runyan, because the yellow fever in Florida, at Pensacola, is as far from the orange groves—500 to 700 miles—as is Arkansas itself, and also because no one has yet suggested that oranges carry mosquitoes.——The United States Public Health and Marine-Hospital Service has circulated a note on the history and habits of the mosquito, by Prof. L. O. Howard, chief entomologist of the Department of Agriculture. In this it is noted that late in the summer the stegomyia may be carried well to the North by train and boat.——Mexico is nearly free from yellow fever.——The official reports of the United States Public Health and Marine-Hospital Service show that many refugees came North from the infected Mississippi towns about October 1, the larger portion coming to Chicago and numbering nearly or quite 200 persons.——It has developed clearly that most of the towns along the line of the Yazoo & Mississippi Valley Railway are infected and that the infection dates from a cheap excursion into New Orleans which was run by that railroad in July, just before yellow fever was admitted to be present in New Orleans. Of course, it follows that the early cases for several successive crops either were unrecognized or concealed. For instance, at Port Gibson two cases were admitted September 29, but investigation showed that probably 50 prior cases had not been reported. Even yet not all the physicians at Vicksburg will report their cases, and a portion of the populace fumigates in only a perfunctory way. In consequence it is difficult to make real progress there.——The little town of New Iberia, La., boasts of its rational methods and of their complete success. With $3,000 from the city treasury and $2,000 from citizens, the town from the beginning of the epidemic has been thoroughly guarded without shotguns and has been repeatedy inspected by districts. It had its detention camps and its screened hospital. The Southern Pacific Railroad was permitted to make a sort of headquarters in the town, and not a case of yellow fever has occurred.——Dr. C. M. Shanley, who did such yeoman volunteer service along Bayou Barataria, died of a relapse of yellow fever. In every sense of the word he died a martyr, giving his life that others might live and that he might do his duty. Well-to-do and serving without remuneration under most exhausting conditions, he was truly a hero and died a hero's death.——Dr. Szabary of New Orleans is under two charges of failing to report cases of yellow fever. ——For the week of October 2 to 9 inclusive there were reported in New Orleans only 170 new cases of yellow fever, with 17 deaths. These figures clearly demonstrate the steady and progressive diminution of the epidemic.——There has been one death from yellow fever in Chicago—a refugee, of course.

CANADA.

Sanatorium for Tuberculosis in Hamilton.—Twenty thousand dollars have been subscribed at Hamilton, Ont., for the establishment of a consumption sanitarium.

Protestant Hospital for the Insane.—In the Protestant Hospital for the Insane at Verdun, near Montreal, during the week ending October 3 there were seven admissions; four patients were discharged cured, and two discharged on trial. There were four deaths.

Provincial Jubilee Hospital, Victoria, B. C.—The number of patients admitted into the wards of the Provincial Jubilee Hospital, Victoria, B. C., during the month of August was 103 and the total treated was 143. The free patients treated were 62, the daily average being 56.29.

The New Suburban Hospital.—In Caughnawaga, a historical Indian village adjacent to Montreal, last week Archbishop Bruchesi formally opened a new hospital, which contains two public wards for men and women and several private and semi-private rooms and in all has accommodation for 40 persons.

Vital Statistics in Toronto.—The regular monthly report of the medical health officer shows that during September there were 42 cases of typhoid fever reported, as against 2 cases in August and 19 in September, 1904. The number of births were 497; deaths, 309, and marriages, 294. During the first nine months of 1905 the city supported 181 patients in the hospitals, as compared with 151 for the same period during 1904.

Montreal General Hospital.—At the regular quarterly meeting of the board of governors of the Montreal General Hospital Dr. Craik gave an interesting account of the growth of this institution. In 1854 he said there were eight nurses, while the number of patients was between 80 and 90. During the quarter ending June 30 there had been treated 803 patients, and there were 55 deaths, 26 occurring within three days of admission. Dr. R. P. Campbell was appointed medical superintendent for another year.

Munificent Donations to Toronto General Hospital.—Over $250,000 was subscribed in Toronto during the week ending October 7, by eminent citizens for the new Toronto General Hospital. Senator Cox gave $100,000; Mr. E. R. Wood, $25,000; Mr. Timothy Eaton, $50,000; Mr. E. B. Osler, M.P. (a brother of Dr. William Osler), $25,000; Mr. J. W. Flavelle, the chairman of the Hospital Trust, $25,000; Mr. H. D. Warren, $10,000; Mr. P. C. Larkin, a member of the Hospital Trust, $10,000, and Mr. B. E. Walker, $10,000.

Winnipeg and the West.—The medical practitioners in Saskatchewan are organizing into an association and will seek affiliation with the Canadian Medical Association. Dr. G. A. Charlton, Regina, is the secretary-treasurer.——There were 229 deaths in Winnipeg during the month of September, the largest number for one month in the history of that city. Thirty-seven persons died from typhoid fever.——Three hundred and fifty-five patients were in the Winnipeg General Hospital during the week ending September 30, of whom 246 were men, 75 women and 35 children; 85 outpatients were also treated.

Ontario Vital Statistics.—During August, 1905, there were 2,200 deaths in the province of Ontario. For the same month last year there were 2,024. The increase in 1905 is thought to be due to a greater accuracy in making returns. There is a marked decrease in deaths from scarlet fever, diphtheria and typhoid, while the total reported outbreaks fell from 823 to 741. There were only 2 deaths out of 30 reported cases of scarlet fever, as against 9 out of 132 for the same month last year. There were fewer cases of tuberculosis reported, the number being 153, with 147 deaths. There were 256 cases of typhoid, as against 293 in August, 1904. The cases of whooping cough numbered 141, with 16 deaths.

Personal.—Dr. J. A. Hutchison, Montreal, chief surgeon of the Grand Trunk Railway, has been appointed chief surgeon of the Grand Trunk Pacific Railway, with headquarters at Montreal.——Dr. A. Lapthorn Smith, Montreal, has returned from a trip to Europe.——Dr. Victor C. Vaughan, dean of the medical department of the University of Michigan, delivered the opening lecture at Toronto University on October 3.——Dr. W. H. F. Addison, house surgeon of Toronto General Hospital, has been appointed lecturer on histology in the University of Pennsylvania.——On leaving Kingston for Toronto, Dr. C. K. Clarke, the new superintendent of the Toronto Provincial Hospital, was presented with an address and a cabinet of silver.

Toronto Western Hospital.—In 1896 the Toronto Western Hospital began work in a small house on a residential street in that city. To-day it has a splendid set of buildings, fine grounds and accommodation for 60 patients, while in tents on the grounds there is accommodation for 55 more. An addition has recently been completed for a maternity department, and another annex has just been erected at a cost of $10,000. It is intended shortly to erect a nurses' residence to cost $25,000. A feature of this hospital has been its wide application of the open-air treatment of disease which for the past three or four years has been carried out very successfully. Bequests have recently been made to the amount of $50,000. Another feature of this hospital is that any practitioner in good standing may attend all public ward patients sent in under his care.

The Montreal Maternity Hospital.—Dr. J. Chalmers Cameron, physician at the Maternity Hospital, Montreal, entertained over 400 friends of the institution on October 6. The occasion was a goodby to the old building, a new one having been completed and made ready for occupation. The Montreal Maternity Hospital was founded in 1848 for the purpose of giving instruction in obstetrics to the students of McGill University. The total number of cases attended to in this institution during the past official year was 400, of which number 110 were out-of-town cases, the entire number being an advance of 78 over the preceding year. The training school for nurses was established in 1896 and since that time 80 nurses have been graduated therefrom. The earliest by-laws of the institution provided that the professor of obstetrics at McGill should always be the physician in attendance at this hospital.

Montreal Statistics for 1904.—Dr. Laberge, medical health officer for the city of Montreal, has completed his report for the year 1904. Heretofore Montreal has been credited with an exceedingly high death rate, owing to the fact that illegitimate and prematurely born infants were always included in the list. Including the mortality among the prematurely born and the illegitimate the death rate is 23.39 per 1,000 of the population. Excluding only the deaths among the viable prematurely born infants the rate is 22.48; excluding only the illegitimate (494), and taking in the viable prematurely born, the rate is 27.71. Excluding both the prematurely born and the illegitimate the rate was 20.08. At this rate the death rate in Montreal was lower in 1904 than in Liverpool, Dublin, Belfast, St. Petersburg, Moscow, Breslau, Prague, New York, Venice, and higher than in Birmingham, Munich, Baltimore, Glasgow and Milan. The total number of births in 1904 gave a rate of 35.96 per 1,000 of population, which was 0.23 less than in 1903. This was higher than in Toronto (24.2), and in New York (28.9). The marriage rate for 1904 was 10.21 per 1,000, or 0.5 higher than in 1903.

FOREIGN.

British Commission to Study American Insane.—It is reported that a royal commission has been appointed to visit America to study American methods of caring for the insane.

Diphtheria in Mexico.—It is reported that many cases of diphtheria have occurred in Santa Isabel, in the state of Chihuahua. The board of health of the city of Chihuahua has sent Dr. Terreros to aid in combating the disease, which is becoming epidemic in character.

Politzer's Retirement.—There is scarcely a branch of otology to which Prof. Adam Politzer of Vienna has not contributed in some way, and his works have been translated into all civilized tongues. He celebrated his seventieth birthday October 1, and this is the signal, according to Austrian regulations, for his retirement from his chair in the university, as he has reached the age limit.

Conditions of Bequest to Medical Charity.—A cable dispatch states that a money lender at Naples recently committed suicide, bequeathing his large fortune to the local home for incurables under condition that a memorial tablet be placed in each ward with an inscription to the effect that the money which he made from the rich and which the rich had wrested from the poor, now returns to the poor.

Nothnagel's Last Notes.—After the death last summer of Prof. H. Nothnagel of Vienna, a paper was found on his desk on which he had written out notes taken during the fatal attacks of angina pectoris. The last *Deutsche med. Wochft.* gives a photographic reproduction of the twenty-three lines. They are in German, but the characters are those we use—not the cramped German script. It commences: "Stenocardiac attacks with extremely violent pains. Pulse during attack very different, sometimes slow, 56-60, regular with high tension, then accelerating, 80-90, even and regular, finally completely arrhythmic, irregular, now fast, now slow, with varying tension. The first consciousness of these attacks dates from three or four years back, at first very faint, but gradually becoming more and more pronounced. The true paroxysms with violent pains first appeared five or six days ago. Written July 6, 1905, late in the evening, after I have just had three severe attacks." The next paroxysm proved fatal.

Extravagant Tribute to Zoege von Manteuffel.—The commander-in-chief of the Russian forces, General Linewitsch, wrote a very complimentary letter to Prof. Zoege von Manteuffel on his leaving the seat of war to resume his duties at St. Petersburg. The general stated that God alone knew how many men the other had saved from death, and how many fathers and bread-winners had been returned to their families as the results of his efforts. Both in the hospitals at the rear of the army and in the front after the battles he had always been a model of devoted and blessed service. Heedless of shot and shell, he had been indefatigable in giving first aid to the wounded and aiding to remove them out of range of danger. Then, after the battles, instead of seeking a well-earned rest, he went to the hospitals to devote his energies again to the relief of the suffering. As a model for the younger physicians, and for all, his influence was far reaching. Linewitsch concluded by expressing his gratitude personally and in the name of the Russian soldiery. Manteuffel passed through the campaign without a scratch, but was hit by a flying missile after his return to his home city. He has now recovered from the injury.

Plague and Smallpox in India.—According to *Public Health Reports*, the report on the sanitary administration of the Punjab shows that cholera did not prevail in any severe epidemic form in the province during the year, the total mortality amounting to only 716—that is, 0.04 per mille of population. There are about 33,000 towns and villages in the province, and of these there were only 107 in which deaths from cholera were reported. In 10 whole districts not a single death was registered, in 12 others the total of deaths did not exceed 70, and in the remaining 6 districts the affected area was extremely limited. The report, however, throws no light on the causes of this distribution. Smallpox, unlike cholera, appears to have kept its ground instead of retreating. The deaths attributed to that epidemic during the year under review numbered 9,624, which shows a rate of 0.48 per mille—that is, a little over the mean ratio of the previous five years, though 0.3 lower than that of 1903. The highest mortality, as is very often the case, was registered in the month of May and the lowest in October. In a few districts, however, the epidemic declined after reaching its maximum in the month of January, notably in the case of Attock. As regards seasonable prevalence, plague and smallpox follow a similar course. Plague, like smallpox, breaks out on the approach of the cold season,

increases steadily in the winter, attains its maximum intensity by about the same time as or some weeks earlier than smallpox, and declines with the commencement of the hot weather. In plague the decadence is rapid, while in the case of smallpox it is gradual, but on the whole the two epidemics exhibit a curious inclination to march hand in hand.

First International Surgical Congress.—The success of this gathering of surgeons from around the world surpassed all expectations. Nearly 500 members assembled, and all were enthusiastic over the opportunity thus afforded for discussion of a few of the most vital questions in surgery. The communications were restricted to those bearing on the six questions that had been selected by the committee of arrangements as mentioned in these columns on page 1046 of the last volume. The program there outlined was carried out in every particular. Summaries of the main addresses had been mailed to all the members of the association in time for the discussions following the addresses to be intelligent and fruitful. Brief daily reports of the proceedings were also issued every morning. The congress was not an open one, but merely the first meeting of the newly organized International Surgical Association, which now numbers 700 members. The congress was held at Brussels, September 18 to 23. Kocher of Berne presided, and American surgeons were remarkably well represented, not only in numbers but in scientific prominence. Every day brought new and stimulating discussions, the fruits of which will undoubtedly be in evidence at the next congress, to be held three years from now. The president's address was devoted to the progress realized in the campaign against cancer and appeal for general co-operation in the campaign of prevention which the Germans have so successfully commenced, especially Winter's energetic propaganda. (Winter's work was described in THE JOURNAL, xliii, p. 230.) W. W. Keen of Philadelphia, ex-president of the American Medical Association, delivered one of the four addresses on the first subject on the program, "Value of the Blood Count in Surgery." The other subjects were: "Hypertrophied Prostate," "Diagnosis of Surgical Kidney Affections," and "Surgical Intervention in Non-malignant Stomach Affections," "Tuberculosis of the Joints" and "Peritonitis." Gastric affections elicited the liveliest discussion, Kocher declaring in summarizing that gastric ulcer belongs to the surgeon, and that he could not understand why it is always the physician who decides what belongs to medicine and what to surgery. Monprofit of Angers goes so far as to claim that surgical intervention should be the rule at the first signs of slight ulceration. The *Semaine Médicale*, *Presse Médicale* and the *Berliner klin. Wochft.* have already published installments of the proceedings, the first with running editorial comment. Membership in the association is limited to a certain number.

LONDON LETTER.

The Standardization and Storage of Drugs.

At the annual meeting of the British Pharmaceutical Conference the president, Mr. W. Naylor, delivered an important address on this subject. He said that the present tendency to standardize preparations on the basis of one principle, regardless of other constituents which may be of therapeutic value, should be overcome. He referred to a number of potent drugs for which there is at present no satisfactory mode of standardization, including Calabar bean, hemlock, henbane, jaborandi, stramonium and strophanthus. The most recent investigations of Calabar bean point to the presence of three bases, of which eserin is supposed to represent the therapeutic properties on which the physician depends when he prescribes the official extract. The medicinal properties of hemlock may be due to one or more of the following constituents—coniin, ethyl piperidin, methyl coniin, conhydrin and pseudo-conhydrin. The experiments of Findlay show that the fluid extract of hemlock and the mixed alkaloids obtained from the drug act physiologically in a manner analogous to pure coniin. Hence the determination of the total alkaloids in a preparation of hemlock would probably serve the purpose of standardization. Speaking of storage, Mr. Naylor drew attention to the liability to loss of active principle by chemical change or precipitation on keeping. Different drugs are unequally affected. Preparations of belladonna and nux vomica appear to be the most stable, those of cinchona less so, and the liquid extract of ipecacuanha the least of all, the loss of strength in each case being due to precipitation.

"Return Cases" of Fever.

The Metropolitan Asylum's board has issued an important memorandum with reference to "return cases" of scarlet fever and diphtheria. During twelve months there have been 688 alleged infecting cases of scarlet fever, amounting to 4.1 per cent. of the total number of patients discharged. Of this number 46.5 per cent. appeared to cause "return cases." There is no laxity in the discharge of patients, but "return cases" seem to be due to premature discharge. It is thought that more extended means of isolation than at present exists might result in a considerable reduction in the number of "return cases."

Precautionary Measures Against Cerebrospinal Fever.

The local government board has issued a circular concerning cerebrospinal fever to the local sanitary authorities. It appears that cerebrospinal fever is not more prevalent in this country than it has been from time to time in the last quarter of a century, but in consequence of the prevalence of the disease in central Europe and in America the board thinks that the health authorities should be on the alert to detect it. To this end the board has issued a memorandum prepared by its medical officer, describing the characteristic symptoms of the disease and especially its minor manifestations. In the event of the discovery in any district of groups of cases of illness which might possibly be of the nature of cerebrospinal fever, a special report is to be made to the local sanitary authority by the health officer of the district and a copy of the report is to be forwarded to the local government board. The board will be prepared to render the sanitary authority any advice or assistance which may be necessary. If, in view of any special circumstances, the sanitary authority desires that cases of cerebrospinal fever should be made compulsorily notifiable in their district the board will be prepared to consider an application for extending the provisions of the infectious diseases notification act to that district for a limited period. A memorandum has been prepared by Dr. W. H. Power, health officer of the board, who states that a case of cerebrospinal fever has recently been identified in the neighborhood of London and that of several cases which have been observed in Northamptonshire four were fatal. In the course of the last forty years cerebrospinal fever has been prevalent in a considerable number of localities in England and Wales. Whether the disease is spread from person to person Dr. Power declares to be uncertain and adds that no definite knowledge as to manner of its transmission exists. Since personal infection can not be excluded, however, he recommends that the patients be isolated and measures of disinfection adopted.

The Army Medical Corps and the Boer War.

After the so-called "hospital scandals" of the Boer war a royal commission was appointed to report on the care and treatment of the sick and wounded, and to recommend measures calculated to prevent in the future such loss of life as marked that campaign, whether caused by lack of medical aid or want of sanitary organization. As a result of the report of the commission the establishment of medical officers since the war has been increased by 125, and the establishment of quartermasters, warrant officers, non-commissioned officers and men by 1,216. The question of further increase is still under consideration. As previously reported in THE JOURNAL, the pay of medical officers has been greatly improved. A college for their instruction has been opened in London and permanent buildings are in course of construction. All officers of over five years' service are required to attend a six months' course of instruction, which includes clinical teaching in the various civil hospitals in London by civilian professors. Officers passing certain standards at the examination after the course are eligible for accelerated promotion up to a period of eighteen months, and officers who distinguish themselves in selected subjects are eligible for employment as specialists with extra pay. Promotion to the higher ranks is now based on a system of strict selection based on positive merit. As the result of these regulations the supply of candidates has been of the most satisfactory nature. In March, 1902, Queen Alexandra's Imperial Military Nursing Service was established, greatly improving the conditions of service. Two hundred and fifty-nine nurses were added to the peace establishment. The scale of nurses for fixed hospitals in war has been largely augmented. Properly qualified sanitary officers have been appointed to all commands at home and abroad. It may be remembered that the ambulance wagons used in the Boer war were much too heavy and were severely condemned. To insure a satisfactory wagon a prize was offered, for which many firms competed. After exhaustive trials of many patterns a thoroughly satisfactory wagon has been selected. A special tent (a modification of the Indian E. P. tent) has been designed and has undergone successful trials. A scheme has been drawn up for the establishment of a reserve of civilian surgeons, who will receive military training. A scheme of special enlistment to provide a sufficient reserve of trained orderlies is also under consideration.

Pharmacology

Fake Pharmaceuticals.

An exchange relates the following experience of a pharmacist with a proprietary formula: A firm which makes a proprietary tablet for years had published a certain formula; recently they changed this by adding 8 grains of another drug. The pharmacist in question made inquries of several chemists about this drug and they all assured him that they had never heard of it. He then wrote to the manufacturers of the tablet, asking them if they had changed the ingredients in their preparation, and our exchange states that they made the following reply: "We have not changed the tablet—we only changed the published formula." We wonder how often the opposite is true, that the published formula remains as it was while the ingredients are changed.

Compulsory Use of Secret Proprietaries.

One of the "arguments" used by those who think it right to use secret proprietary medicines is that physicians who have not confidence in, or for any reason do not care to use, secret nostrums are not compelled to use them. Those who use this argument are correct, for we must admit that apart from the influence exerted by his misleading statements and extravagant therapeutic claims the manufacturer does not compel us to prescribe his nostrum. In championing the position of the manufacturer, however, it is not appreciated that this argument implies that the nostrum maker is conducting his business along higher ethical lines than does the physician who prescribes his product, for the physician virtually compels his patients to use these medicines of unknown therapeutic action and composition. A physician, when prescribing a secret or semi-secret proprietary remedy, ought to say to his patient: "I have directed that you buy a remedy that I know nothing about except what the manufacturer has told me." If the nostrum prescriber were thus honest with his patients how long would he have their confidence? If we consider this secret proprietary question from the patients' point of view, it would certainly appear that unless we make an honest, straightforward explanation every time we prescribe a secret or semi-secret proprietary remedy—in other words, a nostrum—we are not dealing honestly with our patients or with ourselves. Should it not appeal to us that when we compel our patients to use medicines about which, of our own knowledge, we know little or nothing, we are debasing ourselves and our profession below the rules of conduct that are followed by the admittedly commercial manufacturers of nostrums

The Great American Fraud.

SAMUEL HOPKINS ADAMS.

Gullible America will spend this year some seventy-five millions of dollars in the purchase of patent medicines. In consideration of this sum it will swallow huge quantities of alcohol, an appalling amount of opiates and narcotics, a wide assortment of varied drugs ranging from powerful and dangerous heart depressants to insidious liver stimulants; and, far in excess of all other ingredients, undiluted fraud. For fraud, exploited by the skillfullest of advertising bunco men, is the basis of the trade. Should the newspapers, the magazines and the medical journals refuse their pages to this class of advertisements, the patent medicine business in five years would be as scandalously historic as the South Sea Bubble, and the nation would be the richer not only in lives and money, but in drunkards and drug-fiends saved.

"Don't make the mistake of lumping all proprietary medicines in one indiscriminate denunciation," came warning from all sides when this series was announced. But the honest attempt to separate the sheep from the goats develops a lamentable lack of qualified candidates for the sheepfold. External remedies there may be which are at once honest in their claims and effective for their purposes; they are not to be found among the much advertised ointments or applications which fill the public prints. Cuticura may be a useful preparation, but in extravagance of advertising it rivals the most clamorous cure-all. Pond's extract, one would naturally suppose, could afford to restrict itself to decent methods, but in the recent epidemic scare in New York it traded on the public alarm by putting forth "display" advertisements headed, in heavy black type, "Meningitis," a disease in which witch hazel is about as effective as molasses. This is fairly comparable to peruna's ghoulish exploitation, for profit, of the yellow-fever scourge in New Orleans, aided by various southern papers of standing, which published as *news* an "interview" with Dr. Hartman, president of the Peruna Company. . . . Acetanilid will undoubtedly relieve headache of certain kinds; but acetanilid, as the basis of headache powders, is prone to remove the cause of the symptoms permanently by putting a complete stop to the heart action. Invariably, when taken steadily it produces constitutional disturbances of insidious development which result fatally if the drug be not discontinued, and often it enslaves the devotee to its use. Cocain and opium stop pain; but the narcotics are not the safest drugs to put into the hands of the ignorant, particularly when their presence is concealed in the "cough remedies," "soothing syrups," and "catarrhal powders" of which they are the basis. Few outside the rabid temperance advocates will deny a place in medical practice to alcohol. But alcohol, fed daily and in increasing doses to women and children, makes not for health, but for drunkenness. Far better whisky or gin unequivocally labeled than the alcohol-laden "bitters," "sarsaparillas," and "tonics" which exhilarate fatuous temperance advocates to the point of enthusiastic testimonials.

None of these "cures" really does cure any serious affection, although a majority of their users recover. But a majority, and a very large majority, of the sick recover, anyway. Were it not so—were one illness out of fifty fatal—this earth would soon be depopulated. . . .

AS TO TESTIMONIALS.

The ignorant drug-taker, returning to health from some disease which he has overcome by the natural resistant powers of his body, dips his pen in gratitude and writes his testimonial. The man who dies in spite of the patent medicine—or perhaps because of it—doesn't bear witness to what it did for him. We see recorded only the favorable results: the unfavorable lie silent. How could it be otherwise when the only avenues of publicity are controlled by the heavy advertisers? So, while many of the printed testimonials are genuine enough, they represent not the average evidence, but the most glowing opinions which the nostrum vender can obtain, and generally they are the expression of a low order of intelligence. . . . There it is in a nutshell; the faith cure. Not the stimulant, but the faith inspired by the advertisement and encouraged by the stimulant does the work—or seems to do it. If the public drugger can convince his patron that she is well, she *is* well—for his purposes. In the case of such diseases as naturally tend to cure themselves, no greater harm is done than the parting of a fool and his money. With rheumatism, sciatica, and that ilk, it means added pangs; with consumption, Bright's disease and other serious disorders, perhaps needless death. No onus of homicide is borne by the nostrum seller; probably the patient would have died anyway; there is no proof that the patent bottle was in any way responsible. Even if there were—and rare cases do occur where the responsibility can be brought home—there is no warning to others, because the newspapers are too considerate of their advertisers to publish such injurious items. . . .

THE MAGIC "RED CLAUSE."

With a few honorable exceptions the press of the United States is at the beck and call of the patent medicines. Not only do the newspapers modify news possibly affecting these interests, but they sometimes become their active agents. F. J. Cheney, proprietor of Hall's catarrh cure, devised some years ago a method of making the press do his fighting against legislation compelling makers of remedies to publish their formulæ, or to print on the labels the dangerous drugs contained in the medicine—a constantly recurring bugaboo of the nostrum-dealer. This scheme he unfolded at a meeting of the Proprietary Association of America, of which he is now president. He explained that he printed in red letters on every advertising contract a clause providing that the contract should become void in the event of hostile legislation, and he boasted how he had used this as a club in a case where an Illinois legislator had, as he put it, attempted to hold him up for three hundred dollars on a strike bill.

"I thought I had a plan better than this," said Mr. Cheney to his associates, "so I wrote to about forty papers and merely said: 'Please look at your contract with me and take note that if this law passes you and I must stop doing business.' The next week every one of them had an article, and Mr. Man had to go."

So emphatically did this device recommend itself to the

assemblage that many of the large firms took up the plan, and now the "red clause" is a familiar device in the trade.[1] . . . To what length daily journalism will go at the instance of the business office was shown in the great advertising campaign of Paine's celery compound some years ago. The nostrum's agent called at the office of a prominent Chicago newspaper and spread before its advertising manager a full-page advertisement, with blank spaces in the center.

"We want some good, strong testimonials to fill out with," he said.

"You can get all of those you want, can't you?" asked the newspaper manager.

"Can *you?*" returned the other. "Show me four or five strong ones from local politicians and you get the ad."

FAKE TESTIMONIALS.

That day reporters were assigned to secure testimonials with photographs which subsequently appeared in the full-page advertisement as promised. As for the men who permitted the use of their names for this purpose, several of them afterward admitted that they had never tasted the "compound," but that they were willing to sign the testimonials for the joy of appearing in print as "prominent citizens." . . .

MEDICAL JOURNALS ALSO.

One might expect from the medical press freedom from such influences. The control is as complete, though exercised by a class of nostrums somewhat differently exploited, but essentially the same. Only "ethical" preparations are permitted in the representative medical press, that is, articles not advertised in the lay press. Yet this distinction is not strictly adhered to. "Syrup of figs," for instance, which makes widespread pretense in the dailies to be an extract of the fig, advertises in the medical journals for what it is, a preparation of senna. Antikamnia, an "ethical" proprietary compound, for a long time exploited itself to the profession by a campaign of ridiculous extravagance, and is to-day by the extent of its reckless use on the part of ignorant laymen a public menace. Recently an article announcing a startling new drug discovery and signed by a physician was offered to a standard medical journal, which declined it on learning that the drug was a proprietary preparation. The contribution returned to the editor with an offer of payment at advertising rates if it were printed as editorial reading matter, only to be rejected on the new basis. Subsequently it appeared simultaneously in more than twenty medical publications as reading matter. There are to-day very few medical publications which do not carry advertisements conceived in the same spirit and making much the same exhaustive claims as the ordinary quack "ads" of the daily press, and still fewer that are free from promises to "cure" diseases which are incurable by any medicine. Thus the medical press is as strongly enmeshed by the "ethical" druggers as the lay press is by Paine, "Dr." Kilmer, Lydia Pinkham, Dr. Hartman, "Hall" of the "red clause" and the rest of the edifying band of life-savers, leaving no agency to refute the megaphone exploitation of the frauds. What opposition there is would naturally arise in the medical profession, but this is discounted by the proprietary interests. . . .

THE DOCTORS ARE INVESTIGATING.

The physicians seem to have awakened, somewhat tardily, indeed, to counter-attack. The American Medical Association has organized a Council of Pharmacy and Chemistry to investigate and pass on the "ethical" preparations advertised to physicians, with a view to listing those which are found to be reputable and useful. That this is regarded as a direct assault on the proprietary interests is suggested by the protests, eloquent to the verge of frenzy in some cases, emanating from those organs which the manufacturers control. Already the council has issued some painfully frank reports on products of imposingly scientific nomenclature; and more are to follow. . . . Legislation is the most obvious remedy, pending the enlightenment of the general public or the awakening of the journalistic conscience. But legislation proceeds slowly and always against opposition, which may be measured in practical terms as $250,000,000 at stake on the other side. I note in the last report of the Proprietary Association's annual meeting the significant statement that "the heaviest expenses were incurred in legislative work." Most of the legislation must be done by states, and we have seen in the case of the Hall catarrh contract how readily this may be controlled. . . .

1. The following is the exact wording of the clause referred to: "It is mutually agreed that this contract is void, if any law is enacted by your state restricting or prohibiting the manufacture or sale of proprietary medicines."

A POSTOFFICE REPORT.

That the advertising and circular statements circulated through the mails were materially and substantially false, with the result of cheating and defrauding those into whose hands the statements came;

That, while the remedies did possess medicinal properties, these were not such as to carry out the cures promised;

That the advertiser knew he was deceiving;

That in the sale and distribution of his medicines the complainant made no inquiry into the specific character of the disease in any individual case, but supplied the same remedies and prescribed the same mode of treatment to all alike.

Should the department apply these principles to the patent medicine field generally, a number of conspicuous nostrums would cease to be patrons of Uncle Sam's mail service.

Some states have made a good start in the matter of legislation, among them Michigan, which does not, however, enforce its recent strong law. Massachusetts, which has done more, through the admirable work of its State Board of Health, than any other agency to educate the public on the patent medicine question, is unable to get a law restricting this trade. In New Hampshire, too, the proprietary interests have proven too strong, and the Mallonee Bill was destroyed by the almost united opposition of a "red-clause" press. North Dakota proved more independent. After Jan. 1, 1906, all medicines sold in that state, except on physicians' prescriptions, which contain chloral, ergot, morphin, opium, cocain, bromin, iodin, or any of their compounds or derivatives, or more than 5 per cent. of alcohol, must so state on the label. When this bill became a law the Proprietary Association of America proceeded to blight the state by resolving that its members should offer no goods for sale there. . . .

Many dangerous and health-destroying compounds will escape through sheer inconspicuousness. I can touch on only a few of those which may be regarded as typical: the alcohol stimulators, as represented by peruna, Paine's celery compound, and Duffy's pure malt whisky (advertised as an exclusively medical preparation); the catarrh powders, which breed cocain slaves, and the opium-containing soothing syrups, which stunt or kill helpless infants; the consumption cures, perhaps the most devilish of all, in that they destroy hope where hope is struggling against bitter odds for existence; the headache powders, which enslave so insidiously that the victim is ignorant of his own fate; the comparatively harmless fake as typified by that marvelous product of advertising and effrontery, liquozone; and, finally, the system of exploitation and testimonials on which the whole vast system of bunco rests, as on a flimsy but cunningly constructed foundation.—Excerpts from *Collier's Weekly*, Oct. 7, 1905.

Correspondence

Spirochaeta Pallida in the Lesions of Syphilis.

SAN FRANCISCO, Oct. 2, 1905.

To the Editor:—Since Schaudinn and Hoffmann described a fine corkscrew-like organism in the lesions of syphilis in May of this year various confirmatory reports have been published on the continent of Europe and in England, but as yet I have seen no reports of the demonstration of the organism in this country. It, therefore, seems proper to report the finding of the *Spirochæta pallida* in two case of untreated secondary syphilis which have lately been under observation in this hospital.

The *S. pallida* was demonstrated in a smear made from a papule located on the patient's back, that is, as far away from the mouth, anus and genitals as it was possible to get, in order to avoid the spirobacteria which normally occur in those regions. In the second case the smear was made from a mucous patch in the mouth. Both preparations showed many organisms, there being frequently two or even three in a field.

Schaudinn and Hoffmann used the Giemsa modification of the Romanowsky stain in their work; but, as that was not obtainable in this market, I used the Romanowsky stain as modified by Wright, and used it in exactly the same way as it is used for malarial blood, except that it remained on the slide for twenty-four hours at room temperature. This gave very clear and satisfactory pictures.

In one case of ulcerating epithelioma and in nine cases of syphilis which had been actively treated the organism was not to be found.

This fact, that in treated cases the organism can not be

shown, is, to my mind, a strong argument for its etiologic importance. The conditions are, therefore, just the same as in another protozoan disease, namely, malaria, where the first dose of quinin causes the parasites to disappear.

The *S. pallida* can not very well be mistaken for anything else when we remember that it is an extremely fine corkscrew spiral, which is only seen with high magnification; I have used a four Lietz ocular and twelfth objective and the very brightest possible illumination and wide open diaphragm. It shows no structure whatever, and nothing but its form can be made out.

The Post Hospital, Presidio. F. F. RUSSELL.

Behring's Alleged Cure for Tuberculosis.

FORT DODGE, IOWA, Oct. 8, 1905.

To the Editor:—Another tuberculosis congress has just adjourned. Like the one which was held in London in 1900, it has been noted principally for a sensation which comes from Berlin. Koch very prematurely laid down his views that bovine tuberculosis was practically free from danger to man. In all probability he was wrong, but it has taken six years, and perhaps ten, to prove him wrong, while the tuberculous cow quietly nips the grass and distributes her bacillus-laden milk to the homes throughout the world.

And now comes Behring with a view which may or may not be right, because it is wholly untried. And if Koch was right at London, then Behring is necessarily wrong now, for his very first premise is based on the assumption that human and bovine tuberculosis are identical. Behring says that his method is still untried on man. Hence, his announcement is premature and can be productive only of harm, for all things will now wait until the truthfulness or error of his theory is made known. The wide movement of associations similar to the Iowa Association for the Study and Prevention of Tuberculosis will be checked necessarily, for the reason that the people will have reason to hope that such an effort may be unnecessary. Philanthropists will hesitate, legislatures that would have taken decisive action this winter will be deterred, and everything will wait while Behring proves that he is either right or wrong, what should have been done before his sensational announcement at Paris was made.

That he withholds his secret for a year, and according to the press interviews, for the purpose of making money out of his discovery, is not altogether commendable on his part. Were it anyone but Behring, the commercial feature of the announcement would force itself on us. J. W. KIME.

Association News

NEW MEMBERS.

List of new members of the American Medical Association for the month of September, 1905:

ALABAMA.
Borden, J. P., Greensboro.
Harkness, R. B., Birmingham.

ARKANSAS.
Niehuss, H. H., Wesson.

ARIZONA.
Gustetter, A. L., Nogales.
Wylie, Wm, Phoenix.

CALIFORNIA.
Clark, Thos. J., Berkeley.
Fowler, C. W. J., Santa Clara.
Jackson, F. F., Oakland.
Ladd, I. B., Stockton.
Mackay, J. G., Towle.
Shorb, J. B., Los Angeles.
Taylor, R. G., Los Angeles.

COLORADO.
Johnson, B. I., Denver.

IDAHO.
Ormsby, O. C., Rexburg.

ILLINOIS.
Allen, L. R., Forrest.
Albrecht, C. A., Chicago.
Bowe, F. O., Chicago.
Buechner, Fred E., Chicago.
Baumgarth, H. R., Chicago.
Banker, E. W., Aurora.
Clinch, J. H. M., Danville.
Chamberlin, B. H., Chicago.
Elkenbary, C. F., Chicago.
Egan, Dan, Chicago.
Gorr, C. W., Chicago.
Hartman, F. S., Chicago.
Hancock, J. L., Chicago.
Hayes, H. M., Peoria.
Krumholz, S., Chicago.
Layton, E. N., Chicago.
Lamb, O. C., Chicago.
Meling, N. C., Chicago.
Menclewski, S. W., Chicago.
Swift, B. F., Chicago.
Seufert, E. C., Chicago.
Scouller, J. D., Pontiac.
Simons, C. J., Chicago.

INDIANA.
Bramkamp, A. L., Richmond.
Charlton, F. R., Indianapolis.

INDIAN TERRITORY.
Leeds, A. P., Chickasha.
Plumlee, R. S., Broken Arrow.

IOWA.
Benson, H. W., Glenwood.
Pfannebecker, Wm., Sigourney.

KANSAS.
Adams, C. S., St. John.
Candler, Fred, Bonner Springs.
Schenberger, S. W., Industry.

KENTUCKY.
Beard, E. F., Lexington.
Bristow, P. M., Kettle.
Bowling, W. W., Canmer.
Gardner, A. E., Morgantown.
Holloway, T. C., Lexington.
James, P. E., Morgantown.
Kash, O. S., Moorefield.
Williams, J. D., Catlettsburg.
Wright, J. R., Louisville.

MARYLAND.
Roth, C. E., Edgewood.
Warner, R. A., Baltimore.

MASSACHUSETTS.
Achorn, J. W., Boston.
Bigelow, C. E., Leominster.
Bonney, R., E. Boston.
Brennan, J. J., Worcester.
Colt, H., Pittsfield.
Derby, G. S., Boston.
Franz, Adolph, Holyoke.
Fallon, M. F., Worcester
Fitzgerald, C. P., Worcester.
Gibson, R. F., Somerville.
Harriman, D. E., S. Hadley Falls.
Hastings, J. W., Feeding Hills.
Hubbard, J. C., Holyoke.
Kimpton, A. R., Somerville.
Kenyon, H. J., Worcester.
McFee, W. D., Haverhill.
Mayberry, F. E., Boston.
Pomeroy, W. H., Springfield.
Rice, C. H., Fitchburg.
Souther, W. T., Worcester.
Thompson, J. J., Webster.
Whittle, J. A., Wakefield.
Ward, R. J., Worcester.

MICHIGAN.
Bigg, A. H., Detroit.
Struve, C. P., Hudsonville.
Tallman, C. A., Weston.
Tower, L. H., Centerville.

MINNESOTA.
Aylmer, A. L., Minneapolis.
Belsheim, A. G., Aitkin.
Binder, G. A., St. Paul.
Chapman, T. L., Duluth.
O'Connor, J. V., St. Paul.
Schultz, F W., Waltham.

MISSISSIPPI.
Bullitt, J. B., Oxford.
Watkins, McD., Natchez.

MISSOURI.
DeLamater, H., Kidder.
Burkhardt, E. A., Kansas City.
Gayler, W. C., St. Louis.
Green, John, St. Louis.
McDonald, C., Kansas City.
Todd, T. B., Richards.
Winter, J. H., Parkville.

MONTANA.
Poindexter, F. M., Dillon.

NEBRASKA.
Foote, E. C., Pauline.
Scott, M. J., Omaha.

NEVADA.
Pope, G. F., Battle Mountain.

NEW HAMPSHIRE.
Parker, D. W., Manchester.

NEW YORK.
Barabini, G., New York.

OHIO.
Ayers, F. E., Celina.
Axline, J. H., Lancaster.
Brown, E. D., Cleveland.
Boone, A., Englewood
Biskind, I. J., Cleveland.
Bunn, R. A., Dayton.
Collins, Chas., Lima.
Collier, E. M., Pemberville.
Cowgill, W. W., Cleveland.
Doolittle, W. F., Cleveland.
Francis, John, Hamilton
Haning, H. C., Dayton.
Hegner, C. F., Cincinnati.
Hoskins, J. M., Marion.
Harding, C. L., Bellevue.
Igo, C. W., Payne.
Kopfstein, F. T., Cleveland.
Khuon, Edwin, Cincinnati.
Kendell, H. W., Covington.
Kimbell, O. W., Toledo.
Kennedy, N. B., Findlay.
Keator, W. B., Findlay.
Linaweaver, —, Findlay.
Morgenstern, A. F., Cincinnati.
Maetke, Hugo, Dayton.
McCarty, I. F., Galena.
MacLachlan, N. L., Findlay.
Norris, O. L., Deshler.
Pollock, Robt., Cleveland.
Pugh, F. H., Bryan.
Price, W. H., Stony Ridge.
Patton, W. V., Springfield.
Ryall, G. W., Wooster.
Reilly, D. G., Dayton.
Rudy, A. S., Lima.
Saunders, O. H., Findlay.
Stove, F. A., Bowling Green.
Sackett, S. C., Fremont.
Stukey, J. M., Lancaster.
Tupper, E. L., Ottawa.
Treece, I. H., Findlay.
Walker, R. S., Toledo.
Warner, O. N., Conneaut.
Wilson, J. G., Colerain.
Zbinden, Theo., Toledo.

OKLAHOMA.
Lee, C. E., Ripley.
Ney, L. A., Keokuk Falls.

PENNSYLVANIA.
Buringer, C. I., Pittsburg.
Brush, H. L., Conneaut Lake.
Burdick, W. P., Mt. Jewett.
Goeltz, F. A., Erie.
Kalb, G. B., Erie.
Katherman, F. C., Safe Harbor.
Lowry, W. J., Carbondale.
Myers, E. R., Ursina.
Moore, W. M., Garrett.
Wills, T. E., Pottstown.

PORTO RICO.
Frost, Carrie A., San Juan. Porto Rico.

RHODE ISLAND.
Burnett, H. W., Providence.

SOUTH CAROLINA.
Sheldon, W. A., Liberty.

TENNESSEE.
Padget, W. D., Ooltewah.

TEXAS.
Burleson, S. J., Fredonia.
Beckman, P. W., Beaumont.
Brookes, R. C., Waelder.
Ellis, W. M., Blooming Grove.
Kinsell, B., Dallas.
Lee, L. L., Thorndale.

WASHINGTON.
Adams, E. M., Arlington.
Harvey, F. C., Spokane.
Power, I. N., Cle Elum.
Redon, L. H., Seattle.
Tetreau, Thomas, No. Yakima.
Wells, H. R., No. Yakima.

WEST VIRGINIA.
Edgell, A. M., Smithville.
McConihay, J. M., Charleston.
Woodville, J. B., Fayette.

WISCONSIN.
Beebe, L. W., Superior.
Blumer, Edw., Monticello.
Bechtol, C. O., Madison.
Cook, E. H., Dale.
Johnson, Fred, No. Freedom.
Peairs, R. P., Milwaukee.
Peck, W. W., Darlington.
Stevens, J. V., Jefferson.
Webb, E. O., Beaver Dam.
Winchester, W. H., Sheboygan.

WYOMING.
Harrison, F. H., Evanston.
Swigart, I. R., Laramie.

For Dandruff.—Barie directs to rub the hairy scalp every night with a 1 to 30 solution of mercuric chlorid in alcohol. Bronson prescribes an ointment of ammoniated mercury 20 grains, calomel 40 grains, and petroleum one ounce. Apply once or twice daily. This, he says, is excellent in simple dandruff, and should be combined with an occasional shampoo.—*Denver Medical Times.*

Marriages

MERRITT B. HOOK, M.D., to Miss Hattie De May, at Cheyenne, Wyo.

J. A. GIBBS, M.D., to Miss Grace L. Hastings, both of Suffield, Conn., October 4.

HAROLD HARGRAVES, M.D., Maywood, Ill., to Miss Leila Lines of Chicago, October 4.

WILLIAM H. PAULEY, M.D., to Miss Emma Wagner, both of St. Louis, September 27.

JOHN DUNN, M.D., Delphos, Iowa, to Miss Mary Secrest of Downey, Iowa, September 26.

WILLIAM O. LUBKEN, M.D., to Miss Mamie Speedy, both of Johnstown, Pa., September 28.

EDWIN D. PERKINS, M.D., to Miss Emma N. Sheed, both of Washington, D. C., September 26.

MICHAEL W. HARRINGTON, M.D., Indian Orchard, Mass., to Miss Catherine Pero, September 27.

WATSON LOVELL WASSON, M.D., to Miss Pearl Belle Randall, both of Waterbury, Vt., October 11.

BENJAMIN HOUSTON BROWN, M.D., to Miss Ethel Emily Corrigan, at New York City, October 4.

HAROLD G. GARWOOD, M.D., Madrid, N. M., to Miss Annie Johnson, at Evansville, Wis., recently.

HUGH SCOTT, M.D., Pawnee, Okla., to Miss Willie Wallace of Dustin, I. T., at Guthrie, Okla., October 1.

EUGENE CLYDE UNDERWOOD, JR., M.D., Louisville, Ky., to Miss Juanita Robinson of New Orleans, July 6.

SAMUEL D. FLAGG, M.D., St. Paul, Minn., to Miss Jennie E. Cotton of Fort Worth, Texas, September 27.

JOHN BLAKESLY HENRY, M.D., Scandia, Kan., to Miss Annette Sullivan of Kansas City, Mo., October 4.

ELISHA I. HOOK, M.D., to Miss Nellie Montgomery, both of Chicago, at Los Angeles, Cal., September 20.

EVERETT HUMPHREYS MORGAN, M.D., Eagle, W. Va., to Miss Elizabeth Bovie of Gallipolis, Ohio, October 11.

WILLIAM R. SMITH, M.D., Grand Ridge, Ill., to Miss Katherine R. Burgett of Keithsburg, Ill., October 3.

THOMAS H. MACKIN, M.D., Wilkes-Barre, Pa., to Miss Helen Roselle Salmon of Reading, Pa., September 27.

JOHN DEVINNE SINGLEY, M.D., to Miss Mara Margarette Johnston, both of Pittsburg, Pa., September 26.

J. NEWTON HATHAWAY, M.D., Chicago, to Miss Natalie L. Yonkers, at Grand Rapids, Mich., September 30.

FRANKLYN EVANS MCCLURE, M.D., Neenah, Wis., to Miss Marjorie Agnes Barkley of Detroit, September 26.

TODD POPE WARD, M.D., Mount Vernon, Ill., to Miss Virginia Griffith Watkins of Owensboro, Ky., September 26.

HORACE P. WILSON, M.D., Mediapolis, Iowa, to Mrs. Josephine McClay Gardner of Delavan, Ill., September 28.

FORREST T. ESTILL, M.D., Colorado Springs, Colo., to Mrs. Emma Harselle Cockrell, at Denver, Colo., September 30.

HARRY F. TAYLOR, M.D., Mount Clemens, Mich., to Mrs. Maude Embrey Riviere of Columbus, Ohio, September 24.

ALBERT L. MCGOUGH, M.D., Detroit, to Miss Mary Cabray Wortley of Ypsilanti, Mich., at Dalton, Ga., September 25.

HARRY H. HEWETT, M.D., Sioux Falls, S. D., to Miss Jeannette B. Lesher of Philadelphia, at Chicago, September 20.

FRED F. SOVEREIGN, M.D., Three Oaks, Mich., to Miss Ellen Horn of New Buffalo, Mich., at La Porte, Ind., September 27.

WALLER STEPHENS HERNDON, M.D., Lexington, Ky., to Miss Emily Shields Cunningham of Mount Sterling, Ky., October 11.

PAUL B. DUNN, M.D., Mahanoy City, Pa., to Miss Theresa Meary, formerly of Mahanoy Plane, at Philadelphia, September 29.

WASHINGTON BERRY GROVE, M.D., U. S. Navy, to Miss Elizabeth Pascoe Thomson, at Summit Point, Jefferson County, W. Va., October 11.

Deaths

John Arvid Ouchterlony, M.D. University of the City of New York, 1861, of Louisville, Ky., died October 9, aged 67. He was born in Sweden, June 24, 1838, his father being an officer in the Swedish army. During the Civil War he entered the service of the United States as surgeon and served throughout the war. Prior to 1863 he was in the hospitals in and about Louisville, where he afterward made his home. In 1864 he was appointed lecturer on clinical medicine in the University of Louisville. In 1865 he resigned from the Army. He was one of the founders of the Louisville Medical College, assuming the chair of materia medica, therapeutics and clinical medicine, which position he held until the autumn of 1876. He later was professor of practice of medicine in the Kentucky School of Medicine, of therapeutics and clinical medicine in the University of Louisville, and later of medicine and clinical medicine in the same institution, which position he held up to the time of his death. He was president of the Kentucky State Medical Association in 1890. In 1892 the University of Notre Dame conferred on him the degree of doctor of laws. In 1890 he was elected a member of the Swedish Antiquarian Society, and in 1891 he received from the Swedish Royal Academy the Linnæan gold medal. He was knighted by King Oscar of Sweden, and Pope Leo XIII conferred the knighthood of the Order of St. Gregory the Great on him. Dr. Ouchterlony was a close student and has contributed much of value to medical literature. His library was one of the largest in the state, embracing books on high-class literature, medicine and the sciences. At the time of his death Dr. Ouchterlony was a member of the board of trustees of the Public Library of Louisville.

Henry Darwin Didama, M.D. Albany (N. Y.) Medical College, 1846, dean of the Syracuse University College of Medicine, died at his home in Syracuse, N. Y., October 4, aged 82. He was born at Perryville, N. Y., June 17, 1823, the son of Dr. John Didama. He received his early education at the Cazenovia Seminary and studied medicine at Geneva Medical College and at Albany Medical College. He first settled for practice in Romulus, N. Y., and in 1851 moved to Syracuse, where he has since resided. He was a member and president of the city, Onondaga county and district medical societies, was a member of the Boston Gynecological Society, of the New York State Medical Association and of the International Medical Congress, held in Philadelphia in 1876. Since 1873 he has been professor of principles and practice of medicine and dean of the faculty of the Syracuse University College of Medicine. He served for eight years as surgeon of the Fifty-first Infantry, and later as surgeon of the Sixth Division N. G. S. N. Y. He was coroner of Syracuse and Onondaga County for twelve years. Dr. Didama was for many years a member of the American Medical Association and was one of its wheelhorses. He was vice-president in 1875 and chairman of the Section on Practice of Medicine in 1884. He always stood for that which was best, whether in science or in conduct, and few men had wider influence for good.

Thomas Milton Todd, M.D. Miami Medical College, Cincinnati, 1869; a member of the American Medical Association, and of the Medical Society of the State of California, for forty years a practitioner of East Auburn, Cal.; for thirty years physician and surgeon to the Placer County Hospital; local surgeon of the Southern Pacific System; county physician of Placer County; several times president of the Placer County Medical Society, died at his home in East Auburn, September 15, from pneumonia, after an illness of six days, aged 66.

Edwin D. Steel, M.D. The College of Medicine and Surgery of the University of Minnesota, Minneapolis, 1889, a member of the American Medical Association; for many years secretary of the Minnesota Valley Medical Society; president of the Blue Earth County Medical Society; one of the most prominent and popular practitioners of southern Minnesota, died at his home in Mankato, September 21, from uremia, after a long illness, aged 43. Members of the local medical society acted as pall-bearers at his funeral.

Norman Bruce Scott, M.D. New York University, New York City, 1844, great grand nephew of Dr. Upton Scott, Annapolis, first president of the Medical and Chirurgical Faculty of Maryland, 1799-1801; a member of the Medical and Chirurgical Faculty of Maryland, and the first president of the Washington County Medical Society; a practitioner of Hagerstown, Md., for half a century, died at his home in that city, September 21, from senile debility, after an illness of three weeks, aged 86.

Joseph Maurice Sheahan, M.D. University of Paris, France, 1879, a member of the American Medical Association, Massachusetts Medical Society and the Norfolk South District Medical Society; one of the most prominent and best beloved practitioners of southeastern Massachusetts; a member of the Quincy school board from 1886 to 1896, and chairman of the local board of health in 1888, died at his home in Quincy, September 21, after an illness of a year, aged 52.

George Gregory Carroll, M.D. University of Buffalo (N. Y.) Medical Department, 1870, a member of the New York State

Medical Association, Monroe County Medical Society, Rochester Pathological Society and the Hospital Medical Society; one of the managers of the State Industrial School in 1891; twice a member of the board of education, died at his home in Rochester, September 25, from cerebral hemorrhage, after a short illness, aged 62.

Robert **Ormiston, M.D.** University of Pennsylvania, 1858, of Brooklyn, member of Kings County Medical Society and Brooklyn Pathological Society; consulting physician to Brooklyn Hospital, and surgeon of the Thirteenth New York Volunteer Infantry in the Civil War, died suddenly from heart disease at Stamford, N. Y., September 19, aged 71.

Charles **I. Roseberry, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1860, for several years a member of the Easton (Pa.) board of health; surgeon in the Army during the Civil War, died at his home in Easton from injuries sustained by a fall several months before, aged 74.

Little **C. Osmun, M.D.** Medical Department of Columbian College, Washington, D. C., 1860, surgeon in the Army during the Civil War, and in charge of the Alexandria (Va.) General Hospital, died at the residence of his daughter in Washington, D. C., September 15, from senile debility, aged 73.

Edgar **Worthington, M.D.** University College of Medicine, Richmond, Va., 1898, a member of the American Medical Association and a prominent and successful young practitioner of Wilmington, Del., died at his home in Wilmington, from nephritis, after a long illness, September 21, aged 35.

Charles **Sumner Boynton, M.D.** University of Buffalo (N. Y.) Medical Department, 1857, surgeon of the Sixty-seventh Indiana Volunteer Infantry in the Civil War, died at his home in Indianapolis, September 23, from uremia, after an illness of three years, with nephritis, aged 72.

Albert **E. Powell, M.D.** University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892, for six years health officer of Grant County, Ind., died at his home in Marion, September 21, from tuberculosis, after an illness of three years, aged 36.

Julius **J. Vaughan, M.D.** College of Physicians and Surgeons in the City of New York, 1860, for forty-five years a practitioner of Springville, Mich., died at his home in that place, September 17, after an illness of several weeks, from hepatic abscess, aged 72.

Jeremiah **B. Spiers, M.D.** Cincinnati College of Medicine and Surgery, 1877, formerly of Port Royal, Ky., but for two years a resident of Texarkana, Texas, died suddenly from cerebral hemorrhage in the office of the health officer of that city, September 12.

Edward **E. Rhoads, M.D.** Jefferson Medical College, Philadelphia, 1905, secretary of the Hare Medical Society of that institution, died at his home in Reading, Pa., after an illness of two weeks, aged 31.

Dennis **Buell Wiggins, M.D.** Cincinnati, Ohio, 1846, for more than fifty years a practitioner of Buffalo, N. Y., died at his home in West Seneca, N. Y., September 23, after an illness of ten days, aged 83.

William **L. Philips, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1874, of Mount Washington, Pa., died in Uniontown, Pa., September 9, from brain disease, aged 60.

John **Briscoe, M.D.** The College of Physicians and Surgeons, Baltimore, 1894, of Baltimore, died at St. Agnes' Hospital in that city, September 16, from tuberculosis, after a short illness, aged 43.

Adolph **J. Vidal, M.D.** Medical College of the State of South Carolina, Charleston, 1869, died at his home in Gainesville, Fla., September 21, from consumption, after a lingering illness.

James **O. H. Burnham, M.D.** Medical School of Maine at Bowdoin College, Brunswick, 1880, died suddenly at his home in Bar Mills, Maine, September 21, from heart disease, aged 63.

George **H. Somerville, M.D.** Cleveland (Ohio) Medical College, 1879, was found dead in his office in Cleveland, September 16, it is supposed from an overdose of chloroform,, aged 48.

A. **C. D. Bradshaw, M.D.** University of Michigan Department of Medicine and Surgery, Ann Arbor, 1867, died at his home in Fairfield, Iowa, September 25, after a long illness, aged 59.

George **Edwin Ricker, M.D.** Pennsylvania, 1878, city physician of Minneapolis, Minn., in 1903, died suddenly at his office in that city, September 23, from heart disease, aged 51.

Henry **Batdorf, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1876, died after an illness of eight months, at his home in Bethel, Pa., aged 56.

Samuel A. Whitehorn, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1852, died at his home in Los Angeles, Cal., September 6, aged 78.

John H. Switzer, M.D. Detroit College of Medicine, 1903, was shot and fatally wounded by his wife at Leaton, Mich., September 20, and died a few hours later, aged 42.

Edwin R. Armistead, M.D. University of Louisville (Ky.) Medical Department, 1853, an old citizen of Prescott, Ark., died at his home in that place, September 23.

Millard B. Sheldon, M.D. Northwestern University Medical School, Chicago, 1895, died at his home in Lake Geneva, Wis., September 9, from valvular heart disease.

George W. Neiberger, M.D. College of Physicians and Surgeons of Kansas City, Kan., 1897, died at his rooms in Kansas City, Mo., September 15, aged 36.

James H. Teasley, M.D. Louisville (Ky.) Medical College, 1890, died recently at his home in Eastman, Ga., and was buried at Hartwell, September 2.

Joseph M. Turney, M.D. University of Nashville (Tenn.) Medical Department, 1871, died at his home in Statesville, Tenn., September 11, aged 63.

John S. Berry, M.D. Medical College of Ohio, Cincinnati, 1881, died suddenly at his home in Spartanburg, Ind., and was buried September 23.

Benjamin Bowman, M.D. New York, 1865, died at his home in Chambersburg, Pa., September 20, after an illness of several months, aged 68.

O. A. Risley, M.D. Cleveland (Ohio) Medical College, 1854, died recently at his home in Cameron, Mo., and was buried September 10.

Eduardo Perugini, M.D. University of Naples, Italy, 1885, died suddenly at his home in New York City, September 22.

John C. Russ, M.D. Cincinnati, 1882, died at his home in Circleville, Ohio, from rheumatism, September 18, aged 53.

T. Edward Perkins, M.D. Pennsylvania, 1895, died at his home in Philadelphia, September 16, aged 38.

Gladys Colt Puckett, M.D. Missouri, 1903, died at her home in Kansas City, Mo., September 16, aged 26.

Book Notices

HUMAN PHYSIOLOGY. Prepared with Special Reference to Students of Medicine. By J. H. Raymond, A.M., M.D., Third Edition. Thoroughly Revised. 444 Illustrations, Some in Colors, and 4 Full-page Lithographic Plates. Cloth. Pp. 687. Price, $3.50 net. Philadelphia: W. B. Saunders & Co. 1905.

The author has evidently gone over every page of the book for the purpose of revision and to bring every subject treated up to date. Hence, while the original book was issued some thirteen or fourteen years ago, since which time immense strides have been made in certain departments of physiology, the volume before us represents the physiology of to-day.

THERAPEUTICS, Its Principles and Practice. H. C. Wood, M.D., LL.D. Twelfth edition. Thoroughly Revised and Adapted to the Eighth (1905) Edition of the United States Pharmacopeia. H. C. Wood and H. C. Wood, Jr., M.D. Cloth. Pp. 907. Price $5.00 net. Philadelphia: J. B. Lippincott Co., 1905.

The twelfth edition of this work on therapeutics has been thoroughly revised and conforms to the new Pharmacopeia which became official September 1. Nearly a hundred new drugs have been added to those included in previous editions and many chapters have been entirely rewritten. In the preface the authors call attention to the fact that hyoscin is classed with the delirifacients, camphor with the cardiac stimulants, and carbolic acid with the disinfectants. While considerable attention is given to anesthesia, general, local and spinal, the only reference to the scopolamin—morphin method—which is receiving so much attention at present, is in a footnote.

PHYSICAL DIAGNOSIS. R. C. Cabot, M.D. Third Edition, revised and enlarged; 245 illustrations. Cloth. Pp. 577. Price, $3.00. New York: Wm. Wood & Co.

The striking feature of Cabot's work is its individuality. The personality of the author is felt on every page. One is impressed with the fact that what is stated are the views of the author gained by personal experience, and not those of some one else. That this is his aim he makes clear by his statement in the preface: "All that I have described I know by prolonged use." The book "makes no attempt to describe technic processes with which the writer has no personal familiarity, and gives no space to the description of tests which he believes to be useless."

Herein lies, we believe, its strength and weakness. It is weak in that it is too incomplete to be put into the hands of the undergraduate to be used as a book of reference. In other words, the work is too incomplete as a guide, since all consideration of laryngoscopy, cystoscopy, ophthalmoscopy, several chemical tests of the gastric contents and of the urine, etc., are omitted. There is no misrepresentation, however, no sailing under false colors; the preface distinctly states these limitations.

The strength of the book is in its honesty and courage of the writer and his shrewdness as a clinical observer and student. While not fanatically iconoclastic, he is healthfully skeptical. Weight of authority does not prove to him the truth of a statement. He must prove it by his own experience; and if this is at variance with the authority, well and good; the result goes down in print just the same. Now, it is this critical spirit, this frank discussion of facts, this honest admission of his personal limitations, that livens the pages and makes one feel that one is having a heart-to-heart talk with the author; and we nod mental approval many a time as some fact is stated in a clear way, and we realize that we have inwardly believed the same, though we had never dared to say it aloud before. For the practitioner, then, the book is highly entertaining and instructive, as well as for the student, if rightly used. It is full of valuable hints.

While from the artistic point of view some of the illustrations might be improved, and while one or two are hardly intelligible, the great majority have a distinct value. The chapters on the physical diagnosis of diseases of the heart, lungs, pleura and blood are especially strong.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

DETERIORATION OF APOMORPHIN HYDROCHLORATE.

CHICAGO, Oct. 6, 1905.

To the Editor:—In the *Alkaloidal Clinic*, July, 1905, Dr. M. G. Price, Mosheim, Tenn., reports a case in which he gave a sample of apomorphin *eleven years old* to a child of four who was choking to death with croup. About 1/25 of a grain was injected into the thigh and caused prompt vomiting "without depression or any untoward symptoms." Dr. Price says: "The apomorphin was very much changed in color, being of a very dark green; it had been in my hypodermic case for more than eleven years, having been purchased and placed there in 1893. Its age had no deteriorating effect on it either by way of strength or poisonous effect." I also have a letter from Dr. T. H. Williams, Germantown, Tenn., who was called on to treat a case of strychnin poisoning, the patient having taken 30 grains of this drug in mistake for quinin, and presenting the symptoms characteristic of strychnin poisoning. His life was saved by the injection, hypodermically, of 1/10 grain of apomorphin, taken from a bottle of this drug which he had had in his case for five years. The drug caused prompt emesis. The doctor says: "The apomorphin had long since run the color scale and had gotten out of the greens." The claim that apomorphin, in turning greenish to green, loses material efficiency or becomes to any practical extent poisonous, is an absurd fallacy. W. C. ABBOTT, M.D.

ANSWER.—When so delicately organized a substance as apomorphin, already a decomposition product, changes color it is safe to assume that it has undergone some marked change, chemical as well as physical. That it is well to be on the safe side in the administration of all medicines is even stronger than assumption, since it is in fact the only safe rule. The apparent fact that there is evidence that apomorphin was prompt and effective as an emetic does not in the least prove that it is either safe or wise to use any drug when in the least decomposed.

MENDEL'S INTRAVENOUS THIOSINAMIN INJECTIONS.

SCRANTON, PA., Oct. 6, 1905.

To the Editor:—Please let me know the formula for the intravenous injection of thiosinamin as practiced by Dr. Mendel.

R. B. MCKEAGE.

ANSWER.—Mendel does not give his formula, but uses a Merck preparation of thiosinamin, which contains 0.13 gm. of sodium salicylate with 0.2 gm. of thiosinamin "fibrolysin," in each bulb. As a rule, he makes an intramuscular injection in the buttocks, and states that not a trace of infiltration was visible on patients who had received thirty or more of these injections in the same spot. His communications have been published in the *Therapie der Gegenwart*, No. 8, and in the *Münch. med. Wochft.*, No. 4. He is known as the "apostle of intravenous medication," and his assertions have been criticised by other writers, so that his last articles have been mostly polemic. He declares that others have applied the thiosinamin in cases not at all adapted for this drug, hence their failures to obtain results as good as his.

State Boards of Registration

COMING EXAMINATIONS.

Board of Medical Examiners of State of Texas, San Antonio, October 17. Secretary, T. T. Jackson, San Antonio.

State Board of Medical Examiners of New Jersey, Trenton, October 17-18. Secretary, E. L. B. Godfrey, Camden.

State Board of Health of Illinois, The Great Northern Hotel, Chicago, October 18. Secretary, J. A. Egan, Springfield.

Louisiana State Board, New Orleans, October 20-21. Secretary, F. A. Larue, New Orleans.

State Board of Heath of Kentucky, Louisville, October 24. Secretary, J. N. McCormack, Bowling Green.

Wyoming September Report.—Dr. S. B. Miller, secretary of the Wyoming Board of Medical Examiners, reports the written examination, held Sept. 6-8, 1905. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 4, of whom 3 passed and 1 failed. Representatives of the following colleges passed:

PASSED. College.	Year. Grad.	Per Cent.
University of Minnesota	(1904)	82.3
University of Oregon	(1905)	81.4
Ohio Medical University	(1905)	81.8

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending October 7:

Glennan, James D., surgeon, leave of absence extended ten days.

Marrow, Charles E., asst.-surgeon, ordered from Fort Sheridan, Ill., to Chicago, Ill., for temporary duty as attending surgeon and examiner of recruits.

Truby, Albert E., asst.-surgeon, granted leave of absence for one month.

Gapen, Nelson, asst.-surgeon, granted leave of absence for one month, with permission to visit the United States.

Juenemann, George F., asst.-surgeon, granted leave of absence for fifteen days.

Cowper, Harold W., asst.-surgeon, granted leave of absence for one month on surgeon's certificate of disability to take effect on his discharge from treatment at the Army General Hospital, Presidio of San Francisco, Cal.

Williamson, Llewellyn P., asst.-surgeon, resignation of commission accepted to take effect December 15.

Lyster, Theodore C., Wadhams, Sanford H., Robbins, Chandler P., Rhoads, Thomas L., Gilchrist, Harry L., Lyster, William J. L., Persons, Elbert E., Bispham, William N., asst.-surgeons, advanced to rank of captain October 3.

Newlove, George, contract surgeon, left Fort Oglethorpe, Ga., on leave of absence for two months.

Davis, Oscar F., contract surgeon, left Fort DeSoto, Fla., for duty at Jefferson Barracks, Mo.

Ashburn, James K., contract surgeon, returned to Fort Lincoln, N. D., from duty with troops in the field.

Adair, George F., contract surgeon, left Fort Wadsworth, N. Y., and arrived at Sea Girt, N. J., for temporary duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending October 7:

Moore, J. M., P. A. surgeon, orders of September 27 modified; ordered to the Navy recruiting rendezvous, New York, N. Y.

Blackburn, T. C., acting asst.-surgeon, detached from duty with naval recruiting party No. 2, and ordered to the naval recruiting rendezvous, St. Louis.

Bradley, G. P., medical director, detached from the Naval Hospital, Washington, D. C., October 15, and ordered to the Navy Yard, Portsmouth, N. H., and to additional duty in command of the Naval Hospital at that place.

Dickinson, D., medical director, detached from the Navy Yard, Portsmouth, N. H., and ordered to command the Naval Hospital, Washington, D. C.

Law, H. L., surgeon, retired, detached from the naval recruiting rendezvous, Boston, and ordered home.

McCullough, F. E., surgeon, detached from the *Pensacola* and ordered to the *Albatross*.

Huntington, E. O., surgeon, detached from the *Albatross* and ordered to Washington, D. C., and report at the Navy Department.

Stuart, A., P. A. surgeon, detached from the Naval Hospital, Chelsea, Mass., and ordered to the *Pensacola* and to additional duty at the Naval Training Station, San Francisco.

Michels, R. H., asst.-surgeon, ordered to the Naval recruiting rendezvous, Kansas City, Mo.

Elmore, B., asst.-surgeon, detached from the Naval Hospital, Washington D. C., December 1, and resignation accepted, to take effect same day.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending October 4:

Gassaway, J. M., surgeon, to rejoin station at St. Louis.

Greene, J. B., P. A. surgeon, to proceed to Port Gibson, Miss., and report to Surgeon Guiteras for special temporary duty.

McMullen, John, P. A. surgeon, to proceed to Gulfport, Miss., for instructions relative to special temporary duty at or near Scranton, Miss.

Amesse, J. W., P. A. surgeon, relieved from temporary duty at Cairo, Ill., and directed to proceed to New Orleans, and report to Surgeon J. H. White for special temporary duty.

Berry, T. D., P. A. surgeon, to proceed to Gulfport, Miss., for instructions relative to special temporary duty at or near Scranton, Miss.

McLaughlin, A. J., P. A. surgeon, relieved from duty at Hamburg, Germany. Proceed to Berlin, Germany, for duty.

Collins, G. L., asst.-surgeon, granted leave of absence for one day under paragraph 191 of the regulations.

Stewart, W. J. S., acting asst.-surgeon, leave of absence granted for thirty days from October 1, revoked.

Scott, E. B., pharmacist, granted leave of absence for seven days under paragraph 210 of the regulations.

Hall, L. P., pharmacist, granted leave of absence for two days from September 9, under paragraph 210 of the regulations.

BOARD CONVENED.

Board to meet at Tampa Bay Quarantine Station, October 3, for physical examination of Chief Engineer H. L. Boyd, R. C. S. Detail for the board: Asst.-Surgeon R. E. Ebersole, chairman. Acting Asst.-Surgeon G. H. Altree, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from September 30 to October 9:

SMALLPOX—UNITED STATES.

California: Los Angeles, Sept. 16-23, 1 case; San Francisco, 1 case.
Illinois: Chicago, Sept. 23-30, 1 death; Galesburg, Sept. 23-30, 3 cases.
Ohio: Cincinnati, Sept. 22-29, 1 case.
Pennsylvania: Altoona, Sept. 23-30, 1 case.
Washington, Tacoma, Sept. 16-23, 1 case.

SMALLPOX—FOREIGN.

Africa: Cape Town, Aug. 19-26, 1 case.
Brazil: Pernambuco, Aug. 1-15, 215 deaths.
China: Hongkong, Aug. 19-26, 1 case, 1 death; Neuchwang, Aug. 5-12, 3 cases.
Ecuador: Guayaquil, Sept. 5-12, 4 cases.
France: Marseilles, Aug. 1-31, 1 death; Paris, Sept. 8-16, 22 cases, 5 deaths.
Gibraltar: Sept. 3-10, 2 cases.
India: Madras, Aug. 19-25, 8 cases.
Mexico: Dona Cecilia, Sept. 25, 1 case.
Russia: Odessa, Sept. 9-16, 4 cases, 1 death.
Spain: Barcelona, Sept. 1-10, 1 death; Cadiz, Aug. 1-31, 1 death.

YELLOW FEVER—UNITED STATES.

Florida: Brent, Sept. 26, 1 case, 1 death; Pensacola, Aug. 29-Oct. 1, 158 cases, 26 deaths.
Louisiana: Ascension Parish, to Sept. 28, 77 cases, 4 deaths; Assumption Parish, to Oct. 2, 38 cases; Avoyelles Parish, to Sept. 29, 11 cases, 2 deaths; East Baton Rouge Parish, to Sept. 30, 7 cases, 1 death; East Carroll Parish, to Oct. 2, 278 cases, 33 deaths; Iberville Parish, to Oct. 3, 30 cases, 8 deaths; Jefferson Parish, to Oct. 2, 428 cases, 46 deaths; Lafourche Parish, 381 cases, 47 deaths; Madison Parish, 307 cases, 18 deaths; Natchitoches Parish, to Sept. 27, 80 cases, 5 deaths; Orleans Parish, New Orleans, July 21-Oct. 4, 3,083 cases, 398 deaths; Plaquemines Parish, to Oct. 2, 54 cases, 8 deaths; Rapides Parish, to Oct. 3, 24 cases; St. Bernard Parish, 24 cases, 3 deaths; St. Charles Parish, to Sept. 29, 117 cases, 16 deaths; St. John the Baptist Parish, to Sept. 27, 151 cases, 14 deaths; St. Mary Parish, to Oct. 3, 756 cases, 29 deaths; St. Tammany Parish, to Oct. 2, 7 cases, 1 death; Tensas Parish, to Sept. 30, 6 cases; Terrebonne Parish, to Oct. 1, 271 cases, 13 deaths.
Mississippi: Gulfport, Aug. 15-Oct. 1, 90 cases, 2 deaths; Gulf Quarantine, July 22-Sept. 16, 65 cases, 1 death; Hamburg, Sept. 15-Oct. 1, 39 cases, 5 deaths; Mississippi City, Aug. 22-Oct. 1, 65 cases; Moss Point, to Oct. 1, 3 cases; Natchez, 62 cases, 3 deaths; Port Gibson, Sept. 27-Oct. 1, 4 cases; Rosetta, Oct. 1, 2 cases; Scranton, Sept. 29-Oct. 1, 17 cases; Vicksburg, Aug. 30-Oct. 1, 81 cases, 7 deaths.

YELLOW FEVER—FOREIGN.

Guatemala: Zacapa, Sept. 21, 18 to 20 deaths.
Honduras: Chamelicon, Sept. 8, 6 cases; Choloma, 1 case; San Pedro, Sept. 8, 2 cases, 2 deaths.
Mexico: Contzacoalcos, Aug. 19-26, 2 cases; Vera Cruz, Sept. 9-23, 4 cases, 2 deaths.

CHOLERA—INSULAR.

Philippine Islands: Manila, Aug. 23-25, 21 cases, 17 deaths.

CHOLERA—FOREIGN.

China: Shanghai, Aug. 19-26, present.
India: Bombay, Aug. 31-Sept. 5, 1 death.
Japan: Yokohama, Aug. 13-20; 1 case, 1 death.

PLAGUE—INSULAR.

Philippine Islands: Manila, Aug. 12-19, 1 death.

PLAGUE—FOREIGN.

India: Bombay, Aug. 31-Sept. 5, 43 deaths; Karachi, Aug. 27-Sept. 3, 22 cases, 17 deaths.
Japan: Formosa, Aug. 1-31, 2 cases; 2 deaths.

Society Proceedings

COMING MEETINGS.

New York State Medical Association, New York City, October 16-19.
Medical Society of Virginia, Nofolk, October 24-27.
Hawaiian Territorial Medical Society, Honolulu, November 4.
American Academy of Medicine, Chicago, November 9-10.
Kentucky State Medical Association, Louisville, Oct. 18-20.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS.

Second Annual Meeting, held in Chicago, Oct. 4-6, 1905.

The President, DR. JOHN E. OWENS, Chicago, in the Chair.

The association has three kinds of membership—permanent members, delegates and associate members. The association is cosmopolitan and has members from Canada and Mexico.

Forty papers were read, most of them being freely discussed. One session was taken up in discussing the care of fractures; conservative treatment of compound fractures; wiring as a means of securing the best results in compound fractures of the long bones; direct fixation in fractures; fractures of the vertebral column involving the cord and its treatment; fractures of the spine; Colles' fractures; fractures of the patella and fractures of the leg. An interesting feature of the meeting was a lantern-slide exhibit of anopheles and stegomyia mosquitoes, with remarks on how freight and passengers are handled from the quarantined city, New Orleans, Dr. L. Sexton, New Orleans. The papers presented were of a higher order and more scientific than usual; the various subjects were treated by men with extensive and varied experience.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. Richard W. Corwin, Pueblo, Colo.; vice-presidents, Dr. J. H. W. Meyer, La Porte, Ind.; Dr. S. L. McCurdy, Pittsburg, Pa.; Dr. Bacon Saunders, Fort Worth, Texas; secretary, Dr. H. B. Jennings, Council Bluffs, Iowa; treasurer, Dr. T. B. Lacey, Council Bluffs, Iowa; editor, Dr. Louis J. Mitchell, Chicago; members of the executive board, Dr. W. S. Hoy, Wellston, Ohio, and Dr. J. R. Hollowbush, Rock Island, Ill.

The time and place of the next meeting are to be decided by the executive board.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Annual Meeting, held in Scranton, Sept. 26-28, 1905.

(*Continued from page 1110.*)

President, DR. ADOLPH KOENIG, Pittsburg, in the Chair.

Welcome Addresses.

An address of welcome was delivered by the Hon. Alex. T. Connell, mayor of Scranton, in which he stated that, in his opinion, if the laity would observe the established rules of preventive sanitation and hygiene, epidemics and pestilences would be markedly decreased, and that, while the science of medicine was advancing every year, there was more need for the application of the knowledge already laid down.

DR. DANIEL A. CAPWELL delivered the address of welcome on behalf of the Lackawanna County Medical Society. He urged on the general practitioner, practicing in a limited field in the country districts, that his work was an important one, and that the Pasteurs and the Listers must have their underworkers. He gave in some detail the evolution of medicine and the work in that direction by Harvey, Jenner, Pasteur, Lister, ROUX and others, and urged the necessity of medical organization as a factor for social, professional and financial advancement.

The following delegates from other states were introduced and each made a few remarks: Dr. W. Blair Stewart, Atlantic City, N. J., delegate from the New Jersey State Medical Society; Dr. Richard H. Gibbons, New York, delegate from the New York State Medical Society, and Drs. Everett J. McKnight and Herman G. Howe, Hartford, Conn., delegates from the Connecticut State Medical Society.

Election of Officers.

The following officers were elected: President, Dr. William H. Hartzell, Allentown; vice-presidents, Drs. Morgan J. Williams, Scranton; J. W. Bruner, Bloomsburg; Israel Cleaver, Reading, and George G. Harman, Huntingdon; secretary, Dr. C. L. Stevens, Athens; assistant secretary, Dr. Theodore B. Appel, Lancaster; treasurer, Dr. George W. Wagoner, Johnstown; trustees for three years, Drs. Thomas D. Davis, Pittsburg; George W. Guthrie, Wilkesbarre; George D. Nutt, Williamsport; for two years, Dr. T. M. Livingston, Columbia.

The next annual meeting will be held at Bedford Springs, Sept. 13-15, 1906.

Spinal Analgesia in Shock.

At the meeting of the surgical section DR. ERASMUS V. SWING, Coatesville, the second vice-president, presided. The address in surgery was delivered by DR. JONATHAN M. WAINWRIGHT, Scranton, who detailed the results of operations on dogs. The results invariably were that the blood pressure decreased in cases in which spinal analgesia had not been employed, but either increased or remained stationary in cases in which it had been employed. He also referred to clinical cases in which he had been able to demonstrate these same points, which, he felt, showed the value of this remedy in those cases where the danger from shock was great.

The Results of Surgical Treatment of Exophthalmic Goiter.

DR. B. FARQUHAR CURTIS, New York, prefers thyroidectomy to sympathectomy, having performed 11 operations by the latter method, with two deaths from acute thyroidism, one relapse after nine months, and only one complete cure five years after the operation. He reported three thyroidectomies with good results, and cited among the advantages of this method the fact that the scars are not so high up in the neck, and local anesthesia can be used, and a preliminary ligation should be made.

Focal Diagnosis of Operable Tumors of the Cerebrum.

DR. CHARLES K. MILLS, Philadelphia, called attention to the advancement made during the last decade, and cited as among the causes of failure in the past difficulty and imperfection in localization, smallness of openings, and the relative imperfections of surgical technic. He divided the cerebrum into the following areas: prefrontal, motor, auditory, midfrontal, parietal and occipital, and stated that the tumor was more apt to develop in the region in control of the upper extremities than of the lower.

Surgery of Operable Lesions of the Cerebrum.

DR. CHARLES H. FRAZIER, Philadelphia, stated that failure is often due to delay. Particularly is this true of Jacksonian epilepsy. Trephining of any kind is liable to produce adhesions. He did not favor silver foil between the dura and the skull, citing a case in which it had produced convulsions, which ceased after the removal of the silver foil. Indiscriminate exploratory craniectomies were not advised, but in cases of infantile encephalitis, if the lesion could not be localized, he felt it to be justifiable. Early diagnosis is now more frequent, the percentage of cases in which the tumor is found is larger, and the mortality is not so high as formerly. These things he attributed largely to better methods of diagnosis and larger openings. In many instances palliative operations are justifiable.

Treatment of Trifacial Neuralgia by Complete Avulsion of the Peripheral Branches of the Trigeminal Nerve.

DR. ERNEST LAPLACE, Philadelphia, stated that he believed the recurrence in many of these cases after excision of the inferior dental nerve was due to regeneration, illustrating this by the regeneration of nerve growths in other parts of the body. He called attention to the fact that whenever the nerve was twisted or squeezed tightly it would break, and stated that in order that the nerve might be extracted as far as possible he had used a specially curved hemostatic forceps, and by twisting the nerve very slowly, taking as much as a minute or two minutes for a single twist, he was able to extract it almost entire; the whole operation requiring from 12 to 20 minutes.

The first session of the medical section was called to order September 26 by the second vice president, Dr. Walter S. Stewart, Wilkesbarre.

The Nostrum Evil and the Council on Pharmacy.

DR. SOLOMON SOLIS COHEN, Philadelphia, delivered the address in medicine. Therapeutics, he said, must depend on diagnosis, as a matter of course, and diagnosis on pathology. The physician must be thoroughly grounded in the fundamental branches back of pathology, but, after all, it is the question of treatment which occupies the principal portion of attention in connection with the physician's relations with the patient. He deplored the position of the profession toward therapeutics which permits the growth of the nostrum evil. The pages of advertising medical journals offer sure cures for various affections which it should be the physician's duty to know how to manage. All are familiar with the visits of the polite gentleman of comprehensive ability, able to instruct the physician how to treat the sick and to enable him to do so with the samples of the particular firm he represents. This credulity on the part of the profession, Dr. Cohen thought, was based on two elements in medical teaching: the one in the teaching of therapeutics in the medical college; the other in the preliminary education of medical students. He called attention to the valuable work being done by the Council on Pharmacy and Chemistry of the American Medical Association in weeding out a number of fraudulent preparations offered to physicians—and employed by them—and asked that the profession encourage the good work. Regarding medical education, he declared that back of the collegiate degree the man entering on the study of medicine should have a thorough training in the laboratory in physics, in chemistry and in biology. The highly complex organism called man, he stated, was made up of many elements, variously constructed, having complex relations with each other, each one exerting certain influences on all the surrounding elements, the whole bound together in connection with the nervous system. To start at the bedside to study the derangements of this complex organism, and the means by which such derangements could be remedied, Dr. Cohen declared, was as ridiculous as the attempt of the astronomer to study an eclipse of the sun without the basic principles of ordinary arithmetic.

Present and Former Methods of Treating Children.

DR. L. EMMETT HOLT, New York, said that the treatment of sick children exhibited two subjects of importance: dietetics and general hygiene. The nutrition of the child should be the first step in treatment. In intestinal disorders he regarded as essential factors evacuance, diet and rest. In the chronic disturbances in children beyond infancy, a careful dietary was, in his opinion, the only treatment giving permanent results. Unless severe lesions were present, the majority of the other measures he considered useless. The neuroses he attributed to impaired nutrition. In pneumonia the greatest effort should be made to put the body into a condition of resistance. The question of fresh air, he believed, was too much ignored. In bronchopneumonia fresh air that is not cold should be received and he has found valuable in treatment the alternate use of two rooms with the air first warmed. His emphasis was on the fact that a better understanding of disease and a broader knowledge of children show that the greatest need is a more scientific and intelligent knowledge of practical dietetics and a better understanding of the condition of health and growth. Of greatest importance in acute and chronic disease, he believed, was the knowledge of how best to preserve the nutrition of the body and thus take advantage of Nature's wonderful power of recuperation in early life.

The Diagnosis of Pneumonia and Empyema in Children, with an Analysis of 200 Cases.

DR. ALFRED HAND, of Philadelphia, referred to certain differences in the chest of a child compared with that of an adult, calling attention especially to the harsh character of the normal breath-sounds, the so-called "puerile" and to the soft character of the bronchial breathing in the child, the latter resembling in intensity the normal broncho-vesicular breathing in adults. He urged frequent examinations of plain, as well as of the doubtful, cases. A small or even large area of consolidation, he stated, might give bronchial breathing and increased vocal resonance, while palpation and percussion showed nothing. Sometimes all of the physical signs might be negative, the diagnosis then resting on fever, increased respiration rate

above forty per minute, and leucocytes, the latter serving to differentiate the sickness from typhoid fever. Lumbar puncture might be necessary to exclude meningitis.

The possibility of the development of empyema, he said, should always be borne in mind, as well as the possibility of the presence of pus in the chest without causing fever, displacement of the apex-beat of the heart, absence of vocal fremitus and resonance and bronchial breathing. In an analysis of 200 cases an interesting feature was the greater tendency of the pneumonia to affect the right lung.

DISCUSSION.

DR. J. P. CROZER GRIFFITH, Philadelphia, opened the discussion of these two papers and was in thorough accord with Dr. Holt. He believed that even a slight modification of milk given the baby to be a very important matter. He advocated the starvation treatment of acute indigestion, and in returning to the milk diet he would err rather on the side of returning too slowly than too promptly. In the management of choreic cases his plan is to put them to bed for rest and quieting of the nervous system. In the treatment of pneumonia he agreed entirely with Dr. Holt, believing the object not to be to cure the pneumonia, but to take care of the baby.

Referring to the paper of Dr. Hand, he believed that the more experience one had with the diagnosis of pneumonia and empyema in children the easier many things become, and, on the other hand, the more difficult. Auscultation and percussion, in his opinion, play a minor part compared with the general symptomatology presented by the baby.

DR. J. H. MCKEE, Philadelphia, said that in the diagnosis of empyema he thought the first essential was to be on the lookout for it, and that the nature of the empyema, as well as its presence, should be determined. In the differential diagnosis of pneumonia and empyema he considered that the resistance offered to the plexímeter in percussion of great importance. Experimental puncture he considers of value both diagnostically and prognostically.

(To be continued.)

AMERICAN PUBLIC HEALTH ASSOCIATION.

Proceedings of the Twenty-third Annual Meeting, held in Boston, Sept. 25-29, 1905.

(Continued from page 1111.)

Experiments on Purification of Boston Sewage.

MR. C. E. A. WINSLOW and MR. EARL B. PHELPS, Boston, read a paper concerning this work carried on for the past three years. Under the conditions of their experiments, crude Boston sewage has been successfully filtered through a 2-foot bed of sand, having an effective size of 0.12 mm., at a rate of 0.4 million gallons per acre per day, divided into four doses in the 24 hours. Their sand effluents were bright, clear and well purified. The depth of the beds can not safely be reduced below two feet. Preliminary septic treatment for 12 and 24 hours does not improve the effluents obtained by sand filtration, although it makes the care of the surface of the beds somewhat easier.

Crude Boston sewage may be treated on single contact beds of fine stone (one-half inch diameter) at a rate of about 1.2 million gallons per acre per day. The effluent, though only partially purified, is generally stable and could be discharged into water without any tendency to create a nuisance. The beds clog rapidly, and the surface needs much attention. A more practical process is the treatment by the double contract system, in primary beds of two-inch material and secondary beds of half-inch material. Such a combination yields a fairly well purified and stable effluent at a rate, on the combined double system, of about 0.7 million gallons per acre per day with beds six feet deep. Such a system does not clog seriously. Primary beds slowly decrease in capacity, but a portion of the loss may be made good by resting for a period. Preliminary septic treatment enables the beds to maintain a higher capacity, but produces an effluent so difficult to purify that their efficiency is interfered with.

The most practical method of those which they have studied appears to be the treatment of crude sewage in double contact beds.

Industrial Wastes and Their Sanitary Significance.

MR. MARSHALL O. LEIGHTON, Washington, D. C., said that though trades wastes have been studied for many years the efforts have been directed toward the recovery of valuable ingredients rather than the treatment of objectionable polluting materials. So successfully has this work been conducted that in some industries the by-products have become more valuable than the original product. Not infrequently the by-product wastes are as objectionable as the original wastes.

The disposal of trades wastes has occupied in this country, a sanitary position secondary to that of sewage disposal. There have been only a few investigations, such as the classic of Kinnicutt and Eddy on acid iron wastes, the investigations of the Massachusetts State Board of Health and the U. S. Geological Survey. The problems afforded by trades wastes are often extremely complex and the study thereof should not be ignored. He classified such wastes as those which are putrescible, those which inhibit the reduction or oxidation of putrescible substances; those which silt up streams and produce obstructions. It is not sufficient to say that probably no industrial waste contains the germs of any disease, and therefore, from a purely pathogenic standpoint, that the relation to sanitation is remote. Unstable organic wastes, such as distillery slops, sulphite pulp liquors, soap liquors and creamery effluents, all produce a condition of putrescibility in streams. While this may not be a menace to health, it is certainly included among those reprehensible features common to modern civilization, which have been turned over to the sanitarian for treatment. As a large proportion of this organic matter is nitrogenous, it provides food for the specific germs of water-borne diseases introduced by sewerage systems during longer periods, and it thereby extends their baneful influence. Such wastes, when discharged in large quantities increase the burden of water filtration systems and in some cases render them inefficient. If sanitarians would be truly successful in their efforts to purify streams they must give their attention to the subject of industrial wastes, and study them with the object of recovering valuable by-products. In so doing they will enlist the co-operation of the commercial and industrial world, which finally and inevitably controls the situation.

The Pollution of Shellfish.

MR. GEORGE A. SOPER, PH.D., New York, stated that it should be more generally known that typhoid fever may be caused by eating oysters and other shellfish which have been grown or immersed in sewage-polluted water. The shellfish industries on the American coast are enormous in extent and value. In some places grave sanitary evils occur. With little exception there is no sanitary supervision over any part of the business of collecting, handling and selling the shellfish. Extensive reforms should be initiated if the public is to be protected against the transmission of typhoid and other enteric diseases which are now disseminated in this way, and the interests of the fishermen and others engaged in the shellfish industry are not to be unnecessarily jeopardized. The nature of these reforms is not a matter of question so much as the method of bringing them about. The remedy proposed is a careful study of the conditions and a wide publication of the principles on which the corrective measures must be based and applied.

Sanitary Analysis Versus Sanitary Inspection.

MR. R. B. DOLE, U. S. Geological Survey, Washington, D. C., drew attention to the value of sanitary survey in regions where the potability of water is in question. Detailed local information generally determines the potability of water better than the data afforded by present analytical methods; therefore boards of health should discontinue the examination of samples of water except those collected in their own study of specific water problems. Funds for water investigation may profitably be expended in the collection of data regarding the natural conditions and industrial and municipal developments which aid in the consideration of water-supply problems. Analytical results and other illustrative material are quoted from a recent investigation of surface waters in Minnesota, conducted

jointly by the U. S. Geological Survey and the Minnesota State Board of Health.

Copper Sulphate in Public Water Supplies.

MR. H. W. CLARK, Boston, dealt with some aspects of the use of copper sulphate in public water supplies. Experiments to test the bactericidal action of copper were made at the Lawrence Experiment Station. Comparing the action of other metals with copper, he finds that the bacteria increase more and decrease slower when in contact with copper than when in contact with tin, lead, zinc, iron or aluminum. The effectiveness of the metals in destroying *Bacillus coli* appears to be zinc, iron, copper, tin, aluminum and lead, in the order named.

Experiments on the Storage of Typhoid Infected Water in Canteens.

MR. EARL B. PHELPS, Boston, reported that in practically all his experiments a number of typhoid organisms lived through the 24 hours. The progressive killing of the organisms was rapid at first, decreasing rapidly toward the end of the period. The indications are that the surviving organisms are hardy, and would not be entirely killed by a much longer exposure. The efficiency of the canteen falls off rapidly when in continuous use, even with a comparatively soft water. The value of the canteen in actual practice would, therefore, be conditioned on its being frequently cleaned, preferably with oxalic acid, a practice which would doubtless be neglected in actual field or camp service. The value of the canteen as a disinfecting agent is seriously affected by clay in the water, and is practically destroyed by the use of waters high in alkaline carbonates.

Pathology and Pathogenesis of Smallpox.

DR. W. T. COUNCILMAN, Boston, presented a general consideration of the pathology and pathogenesis of this disease. He discussed the cause, mode of infection, mode of production of exanthema, immunity, secondary infection and concluded with an experimental study of smallpox in monkeys.

The Pathology and Etiology of Human Vaccinia.

DR. WILLIAM T. HOWARD, JR., Cleveland Ohio, discussed this subject under three heads:

1. MATERIAL AND METHODS.

The material on which this study is based consisted of twenty-three pieces of skin excised from successful vaccinations on twelve men, each of whom was vaccinated in three places at the same time. The vaccinated areas were excised at various periods, from 48 to 168 hours after vaccination. As controls, skin was also excised from three unsuccessful vaccinations. The skin was fixed in Zinker's fluid, cut in paraffin, and sections were stained by various methods, eosin and methylene blue and Borrell's stain giving the best results.

2. PATHOLOGY.

The skin lesions of vaccinia closely resemble those of variola, but are in general rapider and surer. Contrary to the current belief, destruction of the epidermis and the formation of the vesicle are well nigh complete in 48 hours after vaccination. The vesicle at this stage is composed of a reticular meshwork of coarser and finer strands of a hyalin fibrinoid material, formed from degenerated epithelial cells. The meshes of the reticulum contain fluid and fine, granular material, and but few cells. Swelling and reticular regeneration comprise the earliest cytoplasmic changes. Later, larger and smaller hyalin droplets appear and the cells are transformed into hyaline fibrinoid material. Invasion of one epithelial cell by another, a conspicuous occurrence in vaccinia of the rabbit's cornea, is also seen here.

Nuclear degeneration is marked and takes several forms, the earliest being (1) swelling with increased prominence of the reticulum, (2) massing of the chromatin in the center and along the nuclear rim, and (3) wrinkling and retraction of the nuclear rim. Later, the nuclei become condensed and shriveled, and often fragment, with the dispersion of chromatin dust in the cytoplasm and inter-cellular spaces.

Comparatively few blood corpuscles are found in the epidermis at this stage. The internal changes in the corium consist of edema, leucocytic infiltration and swelling and proliferation of endothelium of the blood and lymph vessels. These changes are much more marked than in the corresponding stage of variola.

In the seventy-two-hour lesion all the epithelial cells below the horny layer are necrotic or have disappeared. The spaces of the reticulum are smaller and the strands coarser. In the middle and deeper parts of the lesion fibrin and leucocytes are prominent. The leucocytes are of the large and smaller mononuclear and eosinophilic types. On each side of the original vesicle, early secondary vesicles (analogous to those occurring at the margins of the variola vesicle) are conspicuous. Here the earliest changes in the epithelium may be traced; they are identical with those seen at the margins of the forty-eight-hour lesion. The changes in the corium are still more intense.

From seventy-two hours on, the chief additional changes are (1) condensation of the reticulum into a dense hyaline material, containing broken-down leucocytes, (2) further necrosis of epithelial cells at the margins of the primary vesicle, and (3) persistence of the inflammatory changes in the corium.

The scab or crust is formed by the condensation of the reticulum and exudate of the vesicle. It is thrown off on the renewal of the epidermis, the cells of which proliferate at the margins of the lesion and push their way under the scab.

3. ETIOLOGY OF VACCINIA.

No bacteria were found in any of the lesions. There were found in the early lesions structures corresponding to the primary cytoplasmic stage of *Cytoryctes variolæ*, as described by Councilman and his co-workers and by Howard and Perkins in the early stages of variola and by Tyzzer in vaccinia of the calf and rabbit. There was entire absence of the secondary cytoplasmic and the intranuclear stages of *Cytoryctes variolæ*, which is in accord with Tyzzer's experience in vaccinia of the calf and rabbit. Therefore, we believe that vaccinia of man, the calf and rabbit is caused by the primary cytoplasmic stage of *Cytoryctes variolæ*, which is to be regarded as the asexual cycle of this organism.

(To be continued.)

ASSOCIATION OF HOSPITAL SUPERINTENDENTS.

Seventh Annual Conference, held in Boston, Sept. 26-29, 1905.

The President, DR. GEORGE H. M. ROWE, in the Chair.

The Addresses.

At the first meeting, greetings were extended by DR. DAVID W. CHEEVER, the Nestor of Boston physicians, and by REV. EDWARD EVERETT HALE, D.D., to which DR. HENRY M. HURD, Baltimore responded.

DR. CHEEVER briefly reviewed the changes in hospital construction and management as observed by him during the past forty years. He advocated the open-air treatment of tents or piazzas wherever possible and that the superintendent be a physician. The growth of hospitals may be explained by the increase in the apartment houses, destroying real home life in its best sense, and in the constant stream of poor immigrants.

DR. HALE paid high compliments to the Civil War hospitals, in whose activities he was much associated. The hospital is always a better place for the average person who is ill than the home.

PRESIDENT ROWE, in his annual address, said that Nevada is the only state which has no public, private or ecclesiastical hospital. Income from paying patients is about 43 per cent. of the cost of maintenance. Enlargement of city hospitals should be by branch establishments, simple and inexpensive, to be seen in conjunction with the more perfectly equipped central hospital. Co-operation between the various neighboring hospitals is the demand of the times. A step in this direction is the Massachusetts Round Table of men superintendents and the Association of Nurses.

SIR HENRY C. BURDETT, K.C.B., London, England, spoke of the influence of Boston in introducing, by its trustees and physicians, the spirit of home life into hospitals. Proper keeping of accounts is very important; $20,000 is the small-

est amount which will adequately support a hospital bed, and less sums for this purpose should be discouraged. The great expense incurred in building many hospitals, when not necessary, is deplorable.

The afternoon session included papers by leading architects on hospital construction.

Hospital Expenditures.

Wednesday morning the topic of the session, presided over by DR. GEORGE P. LUDLAM, was hospital expenditures. The chairman pointed out how rapidly these had increased and agreed that many patients, whose prospects were formerly hopeless, are now cured. But he raised the question whether all of this great increase was justifiable.

DR. MOSES COLLINS urged the need of courses in hospital construction, economics, etc., in medical schools.

DR. S. S. GOLDWATER explained the reasons for much of this increased cost as due to building materials, fire proofing, air space, heating and ventilating. All are necessary nowadays and expensive. Concluding, he urged the value and economy of branch convalescent hospitals.

DR. THOMAS HOWELL believes in the small hospital. Better physicians and nurses graduate from them. Decorative features should be eliminated from hospital construction.

The afternoon was spent in visiting the hospitals of Boston.

The evening session was held in the Boston Medical Library. The first paper was by DR. JOHN M. HURD on "John Howard's Observations on Hospitals, 1773-1790," and his emphasis and that of DR. HENRY C. BURDETT, who followed him, was placed on the need of more sympathetic treatment of consumptives. Ordinary precautions and intelligent co-operation render the domestic treatment of the disease reasonably safe.

Medical Libraries in Hospitals Unnecessary.

"Medical Libraries in Hospitals" were described, using that at the Massachusetts General Hospital as a basis, by MRS. GRACE WHITING MEYERS and strongly approved by DR. GEORGE P. LUDLAM. The space can be better used. In the New York Hospital the space once used for a library is now used for a reception room for nurses.

Thursday morning's session was presided over by DR. RENWICH R. ROSS. The topics discussed were "Multiple-storied Buildings for Hospitals in Cities," by DR. A. J. OCHSNER; "Refuse Destroyers and Disinfectants," by DR. JOHN H. MCCOLLOM; "Cold Storage and Refrigeration in Hospitals," by DR. ROSS; "The Utilization of Hospital Waste," by DR. S. A. WASHBURN, and "Engine-room Economics," by JEREMIAH C. LONG, chief engineer of the Boston City Hospital.

Hospital Accounts.

The afternoon session, presided over by DR. C. IRVING FISHER, was devoted to a discussion of hospital accounts.

DR. FISHER suggested that there should be some common system of schedules and statistics and that all reports should be arranged on business principles.

DR. JAMES R. CODDINGTON favored such an arrangement as will permit of comparison of per capita cost in different institutions.

MISS MAUD BANFIELD read a paper on "Hospital Statistical Tables as to Classification of Patients."

American Nurses' Pension Fund Proposed.

The final session was held on Friday morning. A question-box, conducted by DR. JOHN M. PETERS, chairman of the session, occupied much of the time.

The only long speech was by SIR HENRY C. BURDETT, K.C.B., who gave an account of the "British National Nurses' Pension Fund," founded by his efforts in 1888 with $300,000 as a start. It now amounts to fully $5,000,000 and, together with annual gifts, makes available a revenue of $450,000 annually. Dr. Burdett stands ready to act in the organization of a similar fund here in America if business men will combine and back him. All English trained nurses contribute in their active days to the fund and all are entitled to care or a pension when incapacitated by illness, accident or disease.

New Officers.

The following officers were elected: President, Dr. George P. Ludlam, of the New York City Hospital; vice-presidents, Dr. Renwick R. Ross, Buffalo; Rev. George C. Hunting, St. Mark's Hospital, Salt Lake City, and Miss Mary L. Keith, Rochester City Hospital; secretary, George R. Bailey, Jr., Jefferson Medical Hospital, Philadelphia; treasurer, Reuben O'Brien, General Hospital, Patterson, N. J.

Buffalo is the place for the next meeting, the date being left with the executive committee.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Eighteenth Annual Meeting, held at New York, Sept. 19-21, 1905.

(*Continued from Page 1108.*)

Personal Experiences in Myofibroma of the Uterus.

DR. MILES F. PORTER, Fort Wayne, Ind., presented some of the more important facts gained from the treatment and observation of over 125 cases of myofibroma of the uterus. The earlier cases having been seen during a rather exacting general practice, and many of them operated away from home, in private houses, without adequate assistance, accounted for the fact that the records of this part of his work were imperfect. Of the 125 cases, more than 100 were subjected to supravaginal hysterectomy. Two vaginal hysterectomies were done, and in a few cases the tumors were removed by the vagina without opening the peritoneal cavity. No vaginal myomectomies were done in which the abdomen was entered. Myomectomy through the abdomen was done six or eight times only, except cases in which small fibroids were removed during celiotomy for other causes, and these were not considered. Hemorrhage was not so prominent a symptom as was generally thought. In two cases this was the immediate cause of operation, and in one it manifested itself first after establishment of the menopause. Pain, especially during the menstrual period, was the most common symptom. Only one case of pyosalpinx as a complication was seen. In one an eight and one-quarter pound tumor was removed from a four and one-half months' pregnant uterus. Normal labor at term followed, and one child has been born to the mother since without accident. In one case the pregnant uterus was removed for pain, on the theory, which the specimen proved correct, that the woman could neither miscarry nor carry the child to term. The third was operated on because of mild sepsis due to retained fetus. Both recovered.

Women with fibroids are peculiarly liable to infection following labor, miscarriage or menstrual flow. In several cases this danger was the chief indication for operation. Three cases were reported to support this opinion. Rapid growth of fibroids during pregnancy was believed to be more apparent than real. Partial or complete sterility is common in fibroid patients. But one case of malignant degeneration was seen, and only one case died. This was due to the breaking down of a large vaginal tumor, coexisting with a large abdominal tumor. Both were removed through the abdomen. Removal of the vaginal tumor by the vagina by morcellation, and an abdominal hysterectomy later, would probably have saved the patient, who died from the effect of the sepsis from which she was suffering at the time of the operation, combined with the effect of the shock and loss of blood. One case of dermoid of the ovary with multiple fibroids was met with, one practically a pure myoma, and one fibroid of the ovary complicating fibroid of the uterus.

Oöphorectomy for fibroids is not a justifiable operation, as it neither stops the hemorrhage nor the growth of the tumor. The ideal operation for myofibroma will leave the genital tract intact, or as nearly so as possible within reason. The tubes should always be removed when operation renders pregnancy impossible. Healthy ovaries should be left, as should healthy cervices. Whether to operate through the vagina or through the abdomen may be determined before the operation begins, but the details of the technic should be developed as the operation proceeds. In rare cases the elastic ligature is of service. Twice the bladder was cut, but was immediately repaired, and

no harm resulted. One case had a hemorrhage from a split of the broad ligament, which occurred the night following the operation, as a result of the patient starting violently during a dream. No trouble from silk as ligatures was experienced, but, because of the evidence against it, catgut was substituted as soon as he learned to sterilize the latter by heat.

The death rate of abdominal operations need not be over 2 per cent., and vaginal operations involving the peritoneal cavity should not be above 1 per cent.

Unusual Dilatation of Cornual Blood Vessels with Rupture Into Uterus.

DR. FRANK F. SIMPSON, Pittsburg, Pa., reported this interesting case, and stated that apart from their association with neoplasms, vascular changes are not infrequently found when persistent bleeding occurs near the menopause. Arteriosclerosis is rather common; but aneurism, aneurismal varix and varicose veins occurring within the myometrium are rare.

In this instance there was an excessive vascularity of the uterus, with sclerotic arteries and varicose veins. The sclerosis is found in its several forms, varying from a slight nodular infiltration of the intima to complete obliteration. In addition, we have the unusual spectacle of greatly dilated varicose veins, which were the subject of repeated spontaneous rupture with repeated spontaneous closure. In the author's case there was a clinical picture which portrays the perils of this disease in its most serious form. In the well-marked cases that have come under his observation, arteriosclerosis of the uterine vessels has been accompanied by menorrhagia and metrorrhagia, which began between the ages of 38 and 45. They grew more and more pronounced, have resisted medicinal and minor surgical measures, finally endangered life, and have yielded only to hysterectomy. In this case, however, the first symptom was a furious hemorrhage, due to the rupture of a large varicose vein into the uterine cavity. Within two months three other hemorrhages burst on her without warning, and each imperiled her life.

The gross pathologic findings make it clear that without surgical intervention hemorrhage or infection would inevitably have closed the scene within a short while.

Primary Bowel Resection Versus Artificial Anus in Strangulated Hernia.

DR. JOHN YOUNG BROWN, St. Louis, limited himself to a discussion of the surgery of those neglected cases in which, at the time of operation, the intestine found in the hernial sac is so damaged that the operator is forced to resort to one of two procedures—the establishment of an artificial anus or a primary bowel resection.

During the last eighteen months he has operated on seven cases of strangulated hernia; four males, three females. In four the hernia was of the inguinal variety and in three of the femoral type. In all, primary resection was done, followed by a radical operation at the hernial site. Of the seven cases, six recovered, and one died. The oldest patient was 70 years, the youngest 20. The duration of strangulation, longest 57 hours, shortest 9 hours. Amount of gut removed, largest four feet; smallest eight inches. Portion of gut involved small bowel. In each case the condition of the bowel was such as to leave no question concerning the advisability of its removal. In all the resection was done through a supplemental abdominal incision, and the anastomosis was made with the Murphy button. The results obtained he attributes to the careful attention to certain points in the operative technic, a neglect of which he believes has been responsible for the high mortality invariably accompanying the surgical treatment of this condition. He described at length the technic which he employs.

Etiology of Floating Kidney and Nephropexy Therefor.

The president, DR. HOWARD W. LONGYEAR, Detroit, discussed this in his presidential address. Dec. 17, 1903, while operating on a young girl 16 years of age for appendiceal disease, he accidentally discovered that the right kidney, which was normally placed, could be easily pulled down and held in a firm position of complete prolapse by making traction on the cecum. This led to further observation on the etiology of displaced, loose or floating kidney, both on the cadaver and on the living subject, and afterward, as a result of those observations, to efforts to devise an operation that should have for its object the retention of the kidney in its normal position, as well as the anchoring of the ascending colon in such a manner as to remedy the prolapse of the cecum, which usually obtains in these cases, so that it should not exert further traction on the kidney and through it on the duodenum and renal vessels. The object of the address is to record the results, though unfinished, of these observations. The fact that the kidney in question could be pulled down and held firmly in this position by traction on the cecum and ascending colon was an indication that there exists a more firm and positive attachment of this viscus to the kidney than is generally believed.

After considering the literature of the subject, Dr. Longyear assumed that the kidney of his patient was pulled down by the adhesion of the peritoneal attachment or mesentery of the colon to the fatty capsule of the kidney, and yet the firmness of the attachment was an apparent contraindication. With the object of testing this point, three cases of floating kidney were operated on. The peritoneal cavity was entered through the usual incision in the loin, the redundant mesentery gathered up and attached to the incision of the fascia close to the twelfth rib at the upper angle of the wound. In the first case of extreme ptosis, having had Dietel's crisis for several years, the ease with which the operation was performed, the amount of slack mesenteric tissue brought out and attached, and the immediate result which it had of entirely replacing the kidney so it could not be pushed down into the abdomen, were very encouraging.

In the second and third cases, however, in both of which the displacement was less pronounced, there was practically no mesentery, such as was present in the first case, so that the peritoneal fixation seemed to promise less. However, while drawing out the peritoneal attachment of the bowel and making efforts to push the bowel down, away from the kidney, it was noticed in both cases that there was a cord-like structure passing downward from the lower pole of the kidney, which prevented the separation of the kidney and the bowel. This was included with the peritoneal tissue and attached with it. Further investigation of the literature failed to enlighten the author as to the presence of any tendinous prolongation from the lower pole of the kidney, so further investigation was made on the cadaver. The dissection on the cadaver was described at length. The whole upper half of the abdominal parietes being incised and turned downward, the cecum, ascending colon, with hepatic flexure and kidney on the right side, and part of the descending colon, with splenic flexure and kidney on the left side, were removed, the dissection being made from below upward and the organs removed together in such a manner as not to interfere with their normal attachments to each other. On turning the specimens over, the posterior surface of bowel and kidney on each side showed a similar formation of tendinous attachment to each other. This was found to be formed by the gathering together of fine longitudinal fibers from the fibrous network which forms the framework of the fatty capsule. The tendinous ridge, formed by its attachment to the posterior surface of the ascending colon, could be followed easily between the peritoneal reflections down to the margin of the lower peritoneal attachment of the bowel and close to the junction of the ileum—in fact, near the point of the so-called origin in the female subject of the suspensory ligament of the ovary. A specimen illustrating the presence of this phrenocolic ligament was exhibited.

How much of an etiologic factor is this embryologic remnant in the production of displaced kidney? This ligamentous union of the kidney and bowel the author claims is the most important factor in the etiology of nephroptosis.

An operation which he has found the most easy of accomplishment is the fixation of this nephrocolic ligament into the upper angle of the wound without severing it from the colon, and also fastening the redundant mesentery, if it be present, in the lower angle of the wound. The convergence of the framework of the fatty capsule into this ligament makes a structure

of sufficient strength to be depended on to hold the displaced organs, if securely attached to the aponeurotic tissue, preferably where it is thick near the twelfth rib.

Intestinal Obstruction.

DR. LEWIS C. MORRIS, Birmingham, Ala., said that delay in operating for the relief of ileus is due to one of two things: (1) Assuming that the diagnosis has been made, the adoption of expectant treatment with the hope that it will relieve the condition or that it will recover spontaneously; or (2) the delay resulting from a failure to make a positive diagnosis.

He reported six cases of intestinal obstruction, and believes that if all such cases could be given the benefit of operation the mortality in this condition would be completely revolutionized. The fact that some cases exist for days and are relieved by operation, leads, in cases in which there is an element of doubt, sometimes to delay in surgical interference until the chances for recovery are materially lessened. Occasionally a positive differential diagnosis is very difficult, but the conditions from which a differentiation can not be positively made are almost invariably equally as imperative in their demand for surgical intervention as would be the existence of an ileus. These conditions were mentioned.

Sudden severe abdominal pain, associated with nausea and vomiting, plus constipation, which does not respond within a few hours to cathartics and stimulating enemata constitute a condition in which the indications for operation are positive. The ability to isolate a distended loop of intestine, the presence of shock and stercoraceous vomiting, go to confirm the diagnosis, but the nature of their presence causes undue delay in operating. The more sudden and violent the storm of symptoms initiating the condition, the more imperative the indications for an early operation. To reiterate, after the diagnosis of ileus has been made, that the adoption of treatment other than surgical, with the hope that it may effect a cure, is utterly unjustifiable, and that procrastination, based on the hope of spontaneous recovery, is absolutely criminal.

Diagnosis.

DR. JOHN B. DEAVER, Philadelphia, endeavored to place the matter of laboratory diagnosis in its proper light, showing that it is after all only one form of diagnosis by pathognomonic symptoms. He tried also to make a plea for the more thorough education of medical students in the principles of physical diagnosis and in the knowledge of the natural history of surgical diseases, while at the same time advocating a postponement of laboratory methods until the former have been completely mastered. He endeavored to show the real danger which, as it seems to him, exists of the modern surgeon degenerating into a mere mechanical appliance subject to the controlling mind and will of the laboratory diagnostician. Yet, while above all things discountenancing haste and carelessness in reaching conclusions, and the judicious resort to the therapeutic test of exploratory operations, he pointed out what seems to him the legitimate fields of exploratory incision.

Appendicitis Complicating Diagnosis and Treatment of Tumors and Pregnancy.

DR. RUFUS B. HALL, Cincinnati, believes that the diagnosis of appendicitis, when associated with pelvic and abdominal tumors, or in the pregnant woman, has not received the attention on the part of the general profession that the subject deserves. He wishes to call attention more forcibly to the early recognition of the cardinal signs of appendicitis in these cases. It is the common supposition on the part of the general profession that when a patient, known to have an abdominal or a pelvic tumor, is taken suddenly ill with pain in the abdomen, that there is something wrong with the tumor and the cardinal signs of appendicitis are ignored or overlooked.

Dr. Hall then discussed the differential diagnosis of appendicitis complicating fibroid tumors of the uterus and ovarian tumors; differential diagnosis of appendicitis complicating tubal disease; differential diagnosis of appendicitis associated with pregnancy; the treatment of appendicitis complicating fibroid tumors and ovarian tumors and tubal disease; also the treatment of appendicitis associated with pregnancy.

Prolonged Abdominal Pregnancy.

DR. C. A. L. REED, Cincinnati, reported cases as follows:

1. Extrauterine pregnancy with extraperitoneal development of gestation; operated on fifteen months after conception by marsupialization and terminating in recovery.

2. Extrauterine pregnancy with retroperitoneal development of gestation, operated on by marsupialization eleven months after conception and ending in recovery.

3. Extrauterine pregnancy with development of gestation within the anterior abdominal wall, complicated with uterine fibroids, operated on four years and nine months after conception, ending in recovery.

Dr. Reed's conclusion was that the placenta presents the chief factor of danger in operation on these cases. In instances in which the fetus is already dead, and in which there are not symptoms of sepsis demanding immediate operation, a delay for a few weeks is desirable, as thereby the vascularity of the placenta will be greatly reduced, if not entirely destroyed. One case indicated that it might persist to an embarrassing degree after six weeks. The operation by marsupialization is recommended, as it avoids hemorrhage, facilitates perfect drainage and places all conditions under control. The importance of the yeast ferment in eliminating attached fragments of placental detritus was emphasized.

Observations on the Treatment of Face Presentations.

DR. AUGUSTUS P. CLARKE, Cambridge, Mass., said that typical cases of face presentation are not common. Undoubtedly nearly all cases of such presentation are originally brow positions, but by some irregular uterine contraction and other incidental factors they change to the character of face presentation. If the occiput is anterior in face presentation, natural delivery becomes impracticable. Schatz's method for relief by external manipulation has its advantages as an initial measure. In dolicho-cephalic cases other methods will be demanded. Podalic version will sometimes be successful. In mento-posterior presentation rotation of the chin should be made toward the symphysis pubis. If the child is not dead, and the case is that of mento-anterior presentation, and impaction is taking place, and the maternal pelvis is not too narrow, forceps may be used with benefit. In a mento-posterior presentation, when the case is seen late and the position of the face can not conveniently be changed, and the child is still alive, symphyseotomy offers the best method of procedure for saving both the mother and the child.

TRI-STATE MEDICAL ASSOCIATION OF ALABAMA, GEORGIA AND TENNESSEE.

Annual Meeting, held in Chattanooga, Tenn., Sept. 26-28, 1905.

DR. WILLIAM H. WILDER, Birmingham, Ala., presided on account of the resignation of the president, Dr. Hugh L. Appleton, Gadsden, Ala., by reason of ill health in his family.

The meeting was called to order by Dr. Young L. B. Abernathy, Hill City, Tenn. Hon. A. W. Chambliss, mayor of Chattanooga, welcomed the association on behalf of the city, and Dr. Edward B. Wise on behalf of the Medical Society of Hamilton County and the city of Chattanooga. The first vice-president, Dr. William H. Wilder, Birmingham, responded to the address of welcome.

Papers Presented.

Dr. Thomas G. Miller, Gaylesville, Ala., presented a paper on "Pneumonia and Its Treatment," which evoked spirited discussion. Dr. A. Bennett Cooke, Nashville, Tenn., presented a paper on "Sterile Water Anesthesia," which was very generally discussed, and Dr. William D. Haggard, Nashville, Tenn., reported cases of "Surgical Examples of Gastric Ulcer, Cystic Duct Obstruction, Typhoid Perforation and Enlarged Prostate." Dr. William H. Wilder, Birmingham, read a paper on "Emphysematous Gangrene." Dr. Frank P. Norbury, Jacksonville, Ill., read a paper on "The Use and Abuse of the Rest Treatment." Dr. Matthew C. McGannon, Nashville, Tenn., described "The Treatment of Operative Cases Before and After Operations as Practiced in the Woman's Hospital of the

State of Tennessee," and Dr. James T. Searcy, Tuscaloosa, Ala., read a paper on "Medicolegal Insanity."

Election of Officers.

The following officers were elected for the ensuing year: President, Dr. A. Bennett Cooke, Nashville, Tenn.; vice-presidents, Drs. William D. Haggard, Nashville, Tenn.; Albert A. Davidson, Augusta, Ga., and Wellington P. McAdory, Birmingham, Ala.; secretary, Dr. Raymond Wallace, Chattanooga, Tenn., and treasurer, Dr. George R. West, Chattanooga, Tenn.

The society will meet next year in Chattanooga.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.

Fourteenth Annual Meeting, held in Detroit, Sept. 26-28, 1905.

The first vice-president, Lieutenant-Colonel Albert H. Briggs, N. G. N. Y., occupied the Chair, in the absence of the president, Surgeon-General Walter Wyman, United States Public Health and Marine-Hospital Service.

Reports of Officers and Committees.

The annual reports of officers and committees were presented. The secretary reported an increase of nearly 200 in membership; the treasurer a balance of more than $5,000 in the treasury; the chairman of the necrological committee the deaths of 16 members of the association during the year, and the committee on permanent international congress of military surgeons progress.

Entertainment.

The entertainments included an informal reception at the Hotel Cadillac, a tally-ho tour through the city parks and boulevards, a theater party, a trolley excursion to Orchard Lake, Pine Lake and Cass Lake and a trip on the revenue cutter *Tuscarora* to the St. Clair flats, with luncheon at the Marshland Club. September 26 a general reception was held at the Hotel Cadillac, followed by a public meeting at which Hon. George P. Codd, mayor of Detroit, delivered an address of welcome on behalf of the city. In the absence of Senator Russell A. Alger, Representative Denby addressed the meeting on "Michigan in War." Surgeon-General S. Suzuki, imperial Japanese navy, then delivered an address and exhibited lantern slides showing scenes among the sick and wounded in the Russo-Japanese war.

Prize Awarded.

The Enno Sander Prize Model Board of Award reported that no paper has been presented in competition; the Seaman Prize Board of Award reported that it had awarded the Seaman prize of $500 to Major Jefferson R. Kean, U. S. Army, for his paper on "The Prevention of Disease in the Army and the Best Method of Accomplishing That Result."

Major Kean, in this paper, pleaded for the re-establishment of the canteen at Army posts, and sought to show by statistics that venereal disease and other diseases traceable to dissipation have markedly increased in the United States Army since Congress abolished the canteen. He considered the reason for this to be plain, viz., that on the abolition of the canteen at which beer and other comparatively mild liquors were sold under proper restrictions, the soldier who wanted to drink went to the low groggeries which were allowed to be establised outside of each military post, and there he drank bad liquor, and, while under its influence, committed excesses and contracted disease.

Major Kean also made an attack on the cleanliness of Japanese camps, and stated that the only reason why the Japanese suffered less from typhoid fever than the American was because the Japanese used large quantities of tea in the preparation of which the water was necessarily boiled. He also said that there was a possibility of the Japanese being constitutionally immune from typhoid fever.

He commented unfavorably on the volunteer regiments in service during the Spanish-American War, and said that if regulations had been followed there would have been no more deaths in the Army than at an ordinary health resort, instead of the 2,000 fatalities from typhoid fever alone, which he attributed, in a great measure, to the carelessness and thoughtlessness of the volunteer soldiers and to the lack of experience of their officers.

Experiences During the Russo-Japanese Naval War.

Surgeon-General S. Suzuki, surgeon-general Imperial Japanese Navy, read a most interesting and classical paper. He divided his experiences as surgeon-in-chief of the combined fleets serving on board the flag ship *Mikasa* under Admiral Togo, in two parts: (1) The treatment and management of the wounded, and (2) the sanitary arrangement of the combined fleets.

TREATMENT AND MANAGEMENT OF WOUNDED.

Before the fleets left Sasebo, the naval base, he issued orders that aseptic treatment should be adopted in the treatment of the wounded in all battles and that necessary preparations for the adoption of this treatment should be made. He also ordered the employment of conservative surgery, that amputations on board war ships should be avoided so far as possible, and that every preparation should be made for transferring the wounded as soon as possible after the conclusion of engagements to the hospital ship for conveyance to home hospitals. During an engagement complete asepsis is very difficult of attainment. He, however, believed in the immense value of the aseptic treatment of recent wounds, constantly endeavored to combat all the difficulties that stood in the way of this treatment, and demonstrated that his perseverance in that regard had been abundantly rewarded. From February, 1904, to August, 1905, 3,682 casualties occurred in the navy; 1,891 were killed and 1,791 wounded, 117 of whom afterward died. Of the 1,891 deaths, 1,445 were due to shipwrecks caused by submarine mines, and only 563 to wounds received in actual conflict. Of the 1,791 wounded, 647 received wounds requiring hospital treatment, and of these only 32 died. The aseptic methods employed were the same as those in general use.

His experience during the recent war has led him to the conclusion that the proper treatment of the wounded during action must be divided into two stages. At first only the most urgent first-aid methods can be employed, such as the ligature or compression of arteries, the application of splints and the application of gauze pads and bandages. In the second stage, after the action has ceased, the wounded should be brought to the surgery from the places where they have been temporarily bestowed, and relief given. They should then be transferred as soon as possible to the hospital ship. He considers it impracticable to attempt complicated operations in the limited accommodations offered by war ships, except in case of the most urgent necessity.

LOCATION OF SURGERY.

General Suzuki considers that the proper place for the surgery on the battle ship is below the water-line. Care must be taken to provide good light, good ventilation, and, if possible, an elevator for the conveyance of wounded. It is not necessary that the berths for the sick should be near the surgery, for the wounded during the action may be temporarily removed to some place of greater safety, and the berths may be located in any suitable situation on the proper deck above the water-line. In unprotected cruisers the sides of the surgery should be covered with canvass screens, to obviate injury of the bursting of shells, etc., during action. In the temporary surgery steam sterilizers, buckets for the reception of soiled materials and ice boxes should be provided. An operating table may be improvised from the chests which are always to be found on board ship. As the wounded suffer much from thirst, pitchers with long narrow spouts should be furnished as tumblers or glass tubes are too inconvenient for use.

TRANSPORTATION OF WOUNDED.

The ship's complement in the Japanese navy is divided into two portions, for first-aid and ambulance work, the first division comprising clerks, riggers, servants and bandsmen, who receive instruction from the ship surgeon in the bandaging of wounds, the checking of hemorrhage and the carrying of wounded men. The second division, which includes the remainder of the crew, receives instruction as time and oppor-

tunity allow. It was found, however, that during the excitement of battle it was impossible to put in practice all the rules and devices in which the crew had been instructed. In about one-third of the cases, first-aid dressing was applied to the wounded, and the men were carried on stretchers to the surgery. In the remainder of the cases the men were picked up as they fell and carried to the surgery in the arms of their comrades. In many cases of slight injuries the dressing was at once applied, and the men went back to their proper stations without coming to the surgery.

DRESSING MATERIALS.

Thanks to the foresight of the authorities, each ship was provided with a stock of dressing material considerably larger than usually issued, and on this account none of the Japanese ships suffered from deficiency of dressings. The new first-aid package for the use of the navy, suggested by Dr. Suzuki, contained four pieces of supplement gauze, 24 inches long and folded in a package 4 inches square. This package is wrapped in Japanese paper, and is placed in a loose bag of stout Japanese paper steeped in the juice of the bitter persimmon. This bag also contains a regularly folded triangular bandage, and is tightly closed with sterilized paste. This package is much more easily opened than was the old package, and the larger size of the gauze pieces was found materially to facilitate the work of dressing. Each surgery should have a pair of large tailor's shears, which are useful in cutting off the clothing of wounded men, also a large number of dressed splints, fenestrated zinc splints, cotton roller bandages 6 or 7 inches wide, changes of operating clothes for the surgeons and attendants, rubber tubes for checking hemorrhage, and a transfusion apparatus for salt solution. Every soldier and sailor carries on his body a small wooden label marked with his name and rank. This is of the greatest value to the surgeon in identification of the living and of the dead.

EYE-SIGHT OF GUNNERS.

In the Japanese service the eyesight of gunners is always examined before action. If any trouble with the vision is found which would interfere with the usefulness of the individual as a gunner, it is treated at once, or if not easily curable, the man is transferred to another station and his position taken by another man with unimpaired eyesight. It was found that the gases and dust which always accompany the firing of great guns irritate the eyes of the gunners and impair their vision, and for this reason every battery is furnished with a supply of 1 per cent. solution of boric acid.

CHARACTER OF WOUNDS.

Wounds inflicted by shell fragments or splinters due to shell explosions present the characteristic of laceration, whether in soft tissues or bony substance. The wound of entrance is generally smaller than that of exit. Few cases of profuse hemorrhage from such wounds were observed. When bones are injured they are usually broken into small fragments. It was found that the wounds caused by small shell fragments generally healed by primary union, but if a fragment of cloth entered the wound there was always danger of suppuration. The number of wounds inflicted on a single individual varied from 1 to more than 100. Contused, lacerated and explosive wounds furnished the great majority of the injuries. Wounds of the head, face and neck were most frequent; wounds of the lower limbs came next, of the upper limbs next, and the burns and scalds followed. There were 716 drowned, and 25 deaths were due to asphyxia.

SANITARY ARRANGEMENTS, DIET AND WATER SUPPLY.

During the war, with the exception of a transient outbreak of dysentery and the prevalence of beri-beri, which was promptly checked by an increase in the nitrogenous element in the ration, the navy was singularly free from disease.

The daily diet consists of biscuit, 6 ounces, or bread, 8 ounces; rice, 12 ounces; crushed barley, 4 ounces; preserved meats, 5 ounces, or fresh meat, 7 ounces; preserved or fresh fish, 5 ounces; dried vegetables, 3 ounces, or fresh vegetables, 15 ounces; tea leaves, ½ dram; roast barley, 1 dram; sugar, 6 drams. The weekly allowance for cooking purposes consists of peas or beans, 2½ ounces; wheat and flour, 2 ounces; sugar, 3½ ounces; soy, 3 ounces; sesame oil, 1 dram; salt, 1½ ounces; fat, 1 ounce; and the supper ration, biscuit, 3½, or bread, 5 ounces; tea, ½ dram; sugar, 4 drams.

The navy has two water-supply ships furnished with apparatus which will distil about 300 tons of water each daily, and has an addition of two water transports with a capacity of 5,000 tons, and auxiliary water carriers. Throughout the war the supply of distilled water was found in all cases to be sufficient.

Personal cleanliness was enjoined by all members of the crew, and before going into action each individual was required to take a bath and to put on clean underclothing. To this, in Dr. Suzuki's opinion, was due in great measure the small proportion of infected wounds.

HOSPITAL SHIPS.

Japan has two specially fitted hospital ships, the *Kobe-Maru* and *Saikio-Maru*, of about 3,000 tons each, and each containing 186 beds, of which 18 are in an isolated ward and 12 reserved for officers. The transfer of patients was not made by bringing the hospital ship alongside of the man-of-war, but was made by steam launches or boats, and it was found that the hammocks of the patients were the most convenient vehicles for transferring them from the ships to the boats. The proper employment of hospital ships entails much thought and consideration from the surgeon-in-chief of the fleets. Excepting in the battle of the Yellow Sea, there was no need of sending the wounded directly from the war ships to the hospital ships, which were always stationed at the base during action. The Russians allowed their hospital ships to accompany their squadrons, but had little opportunity of availing themselves of the service.

On motion, the association voted Surgeon-General Suzuki a vote of thanks for his most interesting paper.

Election of Officers.

At the final session, September 28, the following officers were elected: President, Lieutenant-Colonel Albert H. Briggs, N. G. N. Y., Buffalo, N. Y.; vice-presidents, Brigadier-General Robert M. O'Reilly, surgeon general, U. S. Army, Washington, D. C., Admiral Presley M. Rixey, surgeon general, U. S. Navy, Washington, D. C., and Colonel George Tully Vaughan, assistant surgeon general, U. S. Public Health and Marine-Hospital Service; secretary (re-elected), Major James Evelyn Pilcher, U. S. Army, Carlisle, Pa.; and treasurer (re-elected), Major Herbert A. Arnold, N. G. Pa., Ardmore, Pa.

Buffalo, N. Y., was selected as the next place of meeting.

(To be continued.)

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held Aug. 22, 1905.

The President, Dr. Dudley Tait, in the Chair.

Tendon Transplantations for Infantile Hemiplegia.

Dr. S. J. Hunkin showed a boy, 11 years old, who had infantile spastic hemiplegia, with the typical club hand and foot. The hand was strongly pronated and ulnar-flexed, and could only be approximated to the face with its posterior ulnar border. Eight weeks previously the tendon of the pronator radii teres was detached from its insertion, a silk tendon was sutured to it and then passed around the radius posteriorly and fastened under the periosteum at or just below its original insertion. This muscle now acts as a supinator instead of as a pronator, and the boy is able to feed himself with that hand and carry a glass of milk to his mouth. At a later operation the tibialis posticus was divided behind the ankle, the proximal end was passed behind the tibia and fibula to the outer side of the leg, and then subcutaneously to the outer border of the foot and planted with silk under the periosteum at the base of the fifth metatarsal bone. The boy can now dorsi-flex and pronate the foot. Dr. Hunkin called especial attention to the fact that the boy could make these new movements without training as soon as the splint was removed. He now proposes, as a final operation, to move the flexor carpi ulnaris to the position of an extensor; for when the wrist is well extended the hand flexors work to better mechanical advantage.

Diffuse Dilatation of the Esophagus.

DR. H. C. MOFFITT showed a patient who had had difficulty in swallowing for about seven years off and on. The patient knew of no injury to his esophagus. He has the sensation that his food is stopped before it reaches his stomach. It may then return to his mouth or it may produce choking sensations, together with dyspnea and palpitation. More recently he has had cramps under the sternum. He can sometimes assist the passage of food through his esophagus by taking a long breath and throwing his head back. At present a stomach tube can not be passed into the stomach on account of an obstruction that is met about 47 cm. from the teeth. The esophagus will hold about 500 c.c. of liquid, and the material obtained from it recently shows pus and blood cells. After the patient had swallowed a suspension of bismuth a skiagraph was made, and this showed a diffuse spindle-shaped dilatation of the esophagus.

DR. C. M. COOPER stated that the esophagus normally holds about 100 c.c. of fluid. In the diagnosis of carcinoma of the esophagus it is important to remember that the bronchial glands are frequently the first to be involved, and that their enlargement may be demonstrated by the use of the *x*-ray.

DR. GEORGE BLUMER has seen a diffusely dilated esophagus at autopsy. Its walls were very much thickened, resembling those of a congenitally dilated colon.

Leprosy Simulating Syringomyelia.

DR. H. C. MOFFITT presented a boy who had come from Cape Verde Islands about three years ago. No satisfactory history of his present illness could be obtained. The skin showed an irregular pigmentation with somewhat oval or circular whitish patches scattered over it. The latter are not anesthetic and they sweat after injections of pilocarpin. No stigmata of syphilis were found. The left small occipital, right great auricular, and right ulnar nerves are somewhat thickened. The left hand is claw-shaped, with atrophy and the reaction of degeneration in the smaller muscles. There was right equino-varus with atrophy of foot extensors and reaction of degeneration in the tibialis anticus and the peronei. Reflexes were normal, except for the absence of the right Achilles and both plantar reflexes. Irregular anesthesias, especially of the distal portions of the extremities, were present. The differential diagnosis lies mainly between leprosy and syringomyelia. Against the latter are (1) the absence of scoliosis, of ataxia, of involvement of the sphincters, of spasticity of the legs, and (2) the peculiar distribution of the palsies (left hand and right foot), the widespread loss of sensation in the lower extremities and the thickening of the peripheral nerves.

DR. D. W. MONTGOMERY stated that the skin lesions are such as might occur in leprosy, and that the enlargement of the nerves is very strong evidence in support of that diagnosis.

DR. H. MORROW said that it is unusual to see so much leucoderma in leprosy without a corresponding loss of sensation.

DR. C. M. COOPER called attention to the fact that the ulnar nerves may be enlarged in other conditions than leprosy.

Vincent's Angina.

DR. H. W. ALLEN demonstrated smears showing the organisms of Vincent's angina. They were obtained from a patient who had had a sore throat, a temperature of 102.6 F. (possibly due to a complicating malaria), and an ulceration on the left tonsil, which was the size of a ten-cent piece and was covered with a grayish-white membrane. The breath possessed a peculiar fetid odor, resembling that of moldy hay. The organisms obtained were a fusiform bacillus and a spirillum. These organisms obtained are believed by Vincent to be the causes of a number of other infections, such as ulcerative stomatitis, noma, gangrene of the lungs, and putrid pleurisy. Clinically the angina must be distinguished from diphtheria and syphilis.

DR. WILLIAM OPHÜLS believes that it is not altogether certain that these organisms cause the angina, for similar ones may be found in the mouths and especially about the teeth, of healthy individuals. It is possible that they are merely secondary invaders, and that the cocci that are almost invariably found in these throats are the primary cause of the lesions. We must differentiate this disease from that recently described by Oliver, which is due to an organism of the oïdium group.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Summer Diarrhea in Infants.

Southworth, in the *Medical Record*, offers suggestions for reducing the prevalence of this disease. Only a small and almost insignificant proportion of the deaths from summer diarrhea occurs in children who have been rightly fed and who enter on the hot months with properly nourished bodies and good digestive powers which have not been overtaxed. The breastfed infant rarely suffers. The large majority of those under one year of age who succumb to these affections are puny, ill-nourished, anemic or rachitic infants, artificially fed, who seem marked for destruction during the first continuous heated term. The child which dies from diarrhea dies as a rule as much because of a previously lowered resistance as from the disease itself. The responsibility rests on the physician whose duty it is to look beyond a present minor ailment and to fortify the infant against this disease. The methods of prevention, fresh air, daily bathing and pasteurization of the food are reasonably familiar to most practitioners, but the truly effective prophylaxis of such mortality should date from the birth of the child. This protection is found in normal breast feeding. The mother should be instructed in the great importance of nursing her own child, and she should likewise be instructed as to how she may best nourish and care for herself in order that she may be able to satisfactorily nourish her babe. In those children not subsisting on breast milk the author recommends beginning early in the spring to protect children against the summer; rachitic children receive proper attention, anemia is treated energetically, diets are regulated, recurrent autointoxication is guarded against, even the slightest subacute or persistent gastrointestinal irregularities are corrected. He lays great stress on the necessity of putting these children on "certified milk." It should be explained to the parent that this milk is not possessed of any sort of charm against summer ills. Certified milk is simply a clean milk instead of a germ and toxin laden one.

It renders no less necessary the careful modification, clean handling, rapid and immediate cooling of the milk, and its maintenance at a low temperature until the food is consumed. The physician should instruct his patient in the kinds of food which young children should have. The practice of early feeding a child stimulants and indigestible foods should be prohibited. Popular beliefs and superstitions, such as the belief that diarrhea is a normal accompaniment of the eruption of the teeth, and that a child is always hungry when it cries, should be overcome. Mothers should be taught that hot weather calls for less food and weaker food, given at longer intervals, with more abundant giving of water. Finally, the author directs attention to other frequent sources of infection. The sucking of the nipple should be absolutely prohibited, "that fraud on infants' credulity, that almost constant appurtenance of the fretful marasmic child, moistened in the bacteria-laden mouth of the attendant to render it more acceptable, dangling against dirty clothes from the dirty string, or reposing temporarily on dusty shelves and tables, carried in dirty pockets, rolling on filthy floors and sidewalks, and then wiped perfunctorily, if at all, before being reinserted in the mouth of the infant." The physician's work is to seek out and correct errors in nutrition, to combat popular misapprehensions, to further the use of clean milk, and to warn mothers that at the very beginning of loose movements in summer they should stop the use of cow's milk in any form, clear out the bowels with castor oil, give water or cereal gruels only, and send promptly for the physician, since delay is so often fatal.

Enuresis.

Barnes, in *American Medicine*, discusses the subject of incontinence of urine in children and states that the successful treatment depends on determining the cause. Enuresis is a symptom of one or more disorders varying from perverted disposition to genuine nervous diseases. The author gives a classification of the causes, both organic and functional, of this condition. Every organ and reflex must be carefully studied. The urine and feces must be repeatedly examined. These children must be kept under observation with diligence and without ceasing. The most important elements in the treatment of this condition are diet, hygiene, habit and training.

DIET.

A generous diet of easily digested food agrees with most children; they should never be overfed. Sometimes a polyuria is associated with an excessive starchy diet, and antidiabetic treatment relieves the condition. In other cases heavy meats and fish have to be eliminated. Stimulating foods and drinks, and liquids of all kinds, should be omitted as much as possible before retiring. In some instances the urine is irritating because of its concentration; in these limiting the liquids would aggravate the enuresis. More frequently the urine is abundant, of low specific gravity, and of almost neutral reaction. Many of these children have chronic intestinal indigestion and must be treated accordingly. Emptying the bowel before retiring is a good practice.

HYGIENE AND HABIT.

Mental and physical irritation should be reduced to a minimum. A quiet, salubrious country place is desirable. Regular habits are imperative. This applies not only to diet, exercise and sleep, but to evacuation of the bowel and bladder. Children should be taught to hold the urine for a considerable time during the day, and should be awakened and made to urinate at a regular hour each night. Exercising in the open air and sunshine is always beneficial. Special exercises directed to strengthening the local muscles can be undertaken with older children. The bath is another hygienic measure often misused. Warm baths are relaxing and frequently followed by colds. The gradually cooling shower or tub bath followed by brisk rubbing, develops vim, vigor and virility. The cold spinal douche gives pleasant results in some instances. A hard bed and moderate covering should always be instituted. Elevation of the foot of the bed and appliances attached to the child to prevent lying on the back are rational measures.

MEDICINAL TREATMENT.

Medical treatment alone is usually negative, unless the enuresis is due to highly acid or irritating urine, or infection and inflammation of the urinary mucosa. Then lithium salicylates, potassium citrate and similar drugs give prompt relief. For the general atonic conditions and weakness of the sphincters, strychnin, quinin and ergot are of first value. Iron and arsenic should be added when needed. Atropin is the drug commonly prescribed. It influences the muscular and reflex activity by lessening the contractile power of the bladder and diminishing the hyperesthesia of the spinal centers. When depending on this drug it must be given, like quinin for malaria; to obtain effects gradually increasing doses should be continued until the enuresis is controlled or the full action of the drug is obtained. The atropin treatment must be pushed for weeks or months, and when a cure is established the dose may be gradually lessened and the drug slowly withdrawn. When masturbation is practiced gelsemium to full physiologic effects may be given alone or with sodium bromid.

Premature Infants.

Morse, in *Am. Jour. Obstet.*, states that two objects are to be attained: to keep the baby alive, and to develop its organism. The infant should be protected from noises, bright lights and unnecessary handling. For the maintenance of animal heat incubators and substitutes for incubators are used. Most incubators may be made to maintain a constant temperature, but none of them provide sufficient pure, fresh, warm air. The best substitute is a crib basket, padded with cotton. The top should be covered with a blanket which reaches just below the baby's neck. The desirable temperature (90 to 95 F.), may be maintained by hot-water bags or bottles, the temperature being taken from the thermometer wrapped in the baby's clothing. The temperature of the room should be from 80 to 85 F. The baby should be oiled every three days, but not washed, and wrapped in a quilted gown with a hood. Absorbent cotton makes a satisfactory substitute for a diaper. The best food for premature babies is breast milk, diluted at first with from one to three parts water. Modified milk with low ingredient percentage is the best substitute for breast milk; 5 c.c. should be given at first at one and a half hour intervals, the amount of milk and the intervals being gradually increased. When the infant is too feeble to take food from a nipple it may be fed with a medicine dropper. When stimulation is indicated one or two drops of brandy, strychnin (1/1000 gr.), and oxygen may be useful. Babies under two pounds usually die. The prognosis is very fair when the weight is over four pounds. A slight elevation of temperature is to be expected; in a subnormal temperature there is danger to the infant. Sudden death may occur without apparent cause, hence it is never safe to consider premature infants out of danger until they are thriving under normal conditions.

Anorexia.

Dr. H. C. Wood recommends for failure of appetite, weak digestion and the general debility from warm weather the following stomachic:

℞.	Acidi nitrohydrochlorici (fresh)	℥ii	8
	Aquæ dest	℥iss	45
	Strychniæ sulph	gr. i	.06
Misse et adde			
	Tincture cardamomi comp.		
	Tincture gentian comp., āā, q. s	℥vi	180
M.	Sig.: Dessertspoonful after meals, in water.		

Amenorrhea.

Goodell placed great reliance in the "mixture of the four chlorids" for women suffering from amenorrhea due to deprivation and depressing hygienic surrounding.

℞.	Hydrargyri chloridi corrosiv	gr. i	.06
	Liquoris arsenici chloridi	m. xlviii	3
	Tincturi ferri chloridi		
	Acidi hydrochloridi diluti, āā	℥iv	16
	Syrupi zingiberis q. s. ad	℥vi	180
M.	Sig.: Dessertspoonful in water after meals.		

Prickly Heat.

The following is recommended for this condition:

℞.	Zinci carbonati precip	℥iv	16
	Zinci oxidi		
	Glycerini, āā	℥ii	8
	Aquæ rosæ	℥viii	240
M.	Sig.: Apply locally.		

Dermatitis Venenata from Poison Ivy.

The following is recommended for this condition:

℞.	Sodii hyposulphitis	℥i	30
	Glycerini	℥iv	15
	Aquæ dest q. s. ad	℥viii	240
M.	Sig.: Keep constantly applied.		

Medicolegal

To Have an Exhibition of Means of Treating Tuberculosis.—Chapter 75 of the Resolves of Massachusetts of 1905 authorizes the state board of health, within two years, to cause a public exhibition to be made of the various means and methods used or recommended for treating and preventing tuberculosis, now recognized as a communicable and preventable disease. The said board may expend a sum not exceeding $2,000 in carrying out the provisions of this resolve, and is directed to report to the general court (legislature) on or before the 15th day of January next following said exhibition, and shall accompany its report with any recommendations for legislation which it may deem advisable.

Provides for a Hospital for Lepers.—A resolution was passed by the legislature of Massachusetts in February, 1905, stating

that it favored such action by the congress of the United States as would provide for the establishment of a national hospital or colony for the care and treatment of persons afflicted with leprosy. Copies of this resolution were to be sent to the presiding officers of both branches of congress and also to the senators and representatives in congress from Massachusetts. But later the state legislature passed a law, which appears as Chapter 474 of the Acts of Massachusetts of 1905, providing that the state board of charity, subject to the approval of the governor, shall be authorized to take land by purchase or condemnation, in the name and for the use of the commonwealth, and to erect and maintain thereon a hospital for the custody, care and treatment of persons afflicted with leprosy, and for said purpose may expend a sum not exceeding $50,000.

An Act Relative to Wood Alcohol.—Chapter 220 of the Acts of Massachusetts of 1905 provides that whoever, himself or by his servant or agent, or as the servant or agent of any other person, sells, exchanges or delivers any wood alcohol, otherwise known as methyl alcohol, shall affix to the vessel containing the same and shall deliver therewith a label bearing the words, "Wood Alcohol, Poison," in black letters of uncondensed Gothic type not less than one-fourth of an inch in height. Whoever violates the provisions of this section shall pay a fine of not less than $50 nor more than $200. Section 2. Whoever, himself or by his servant or agent, or as the servant or agent of any other person, sells, exchanges or delivers, or has in his possession with intent to sell, exchange or deliver, any article of food or drink, or any drug intended for internal use, containing any wood alcohol, otherwise known as methyl alcohol, shall be punished by a fine of not less than $200 or by imprisonment for not more than thirty days, or by both such fine and imprisonment.

Must Report Diseases of Eyes of Infants.—Chapter 251 of the Acts of Massachusetts of 1905 amends Section 49 of Chapter 75 of the revised laws of that state requiring a householder to give notice of dangerous diseases by incorporating therein this provision: "Should one or both eyes of an infant become inflamed, swollen and red, and show an unnatural discharge at any time within two weeks after its birth, it shall be the duty of the nurse, relative or other attendant having charge of such infant to report in writing, within six hours thereafter, to the board of health of the city or town in which the parents of the infant reside, the fact that such inflammation, swelling and redness of the eyes and unnatural discharge exist. On receipt of such report, or of notice of the same symptoms given by a physician as provided by the following section, the board of health shall take such immediate action as it may deem necessary in order that blindness may be prevented." Whoever violates the provisions of this section shall be punished by a fine of not more than $100. Section 50, relative to physicians is made with new matter indicated by quotation marks to read: If a physician knows that a person whom he is called to visit is infected with smallpox, diphtheria, scarlet fever or any other disease dangerous to the public health, "or if one or both eyes of an infant whom or whose mother he is called to visit become inflamed, swollen and red, and show an unnatural discharge within two weeks after the birth of such infant," he shall immediately give notice thereof in writing over his own signature to the selectmen or board of health of the town; and if he refuses or neglects to give such notice, he shall forfeit not less than $50 nor more than $200 for each offence.

Duty and Liability Under Contagious-Disease Statute.—The Appellate Court of Indiana, division No. 1, says, in town of Knightstown vs. Homer, that by Section 6718 of Burns' Annotated Statutes of Indiana of 1901 the trustees of each town in that state shall constitute *ex-officio* a board of health for such town, and it is made the duty of such board to "elect a secretary who shall be the health officer of the appointing board," and it is the duty of such board "to protect the public health by the removal of causes of disease when known, and in all cases to take prompt action to arrest the spread of contagious and infectious diseases." Smallpox is an infectious and contagious disease, and, under the statute, it is the duty of the town board to take immediate and active measures to prevent the spread of this disease among its people. The discovery of a contagious disease like smallpox in a thickly settled community, whether one or more cases, as it seems to the court, creates an immediate necessity for activity on the part of those charged with the duty of preventing its spread, and creates a liability on the part of the town to pay any necessary expense incurred by its health board, or, in the absence of an order of its health board, the expenses incurred by its "health officer," under such an emergency. This was an action against the town to recover, among other things, for damage to property destroyed to prevent smallpox contagion in the town. The property was shown to be of the value of $75 at the time a patient was taken to the plaintiff's home, and worthless at the time destroyed. Thus was presented the question, Did the rule for fixing the amount of damages apply to the value of the property at the time it was discovered that the patient was afflicted with smallpox, or at the time the property was taken by the board of health and destroyed? The patient was in the plaintiff's home not by any act or command of the board of health or its secretary, but he was there at the direction of the plaintiff's husband, and with her consent, and there remained until his death, without request from the plaintiff to any one for his removal. Under these facts, as it seems to the court, the rule for assessing the plaintiff's damages for the property so taken, if the town was liable therefor, should be what the property was worth as there situate at the time it was destroyed. If the rule here announced for the assessment of damages be correct, and the property burned was worthless at the time it was so destroyed, as the plaintiff testified, then there could be no recovery for the item of property, as no damages were proved. Again, the court says that acts for the purpose of preventing the spread of disease are wholly within the jurisdiction of the board of health, and the town can only be made liable when the board acts within the scope of its authority, or for the acts of the secretary of the board when an emergency arises and he is acting within the scope of his authority. Nor does the court think that the plaintiff ought to be allowed for nursing and caring for her child, who was taken with varioloid shortly after the death of the smallpox patient above referred to. It says that there was nothing in the evidence which showed that she was in indigent circumstances, or was not clearly able financially to provide any and all means necessary for the care and attention of her son. She and her son were quarantined in her own home, and, in the absence of a statute making the town liable for such services so rendered by her to her son, the town was not liable.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia, Pa.

September 30.

1 *Large Desmoid Tumor of the Abdominal Wall. E. E. Montgomery and P. B. Bland, Philadelphia.
2 *Surgery of the Stomach. A. D. Bevan, Chicago.
3 *Cryoscopy of the Blood and Urine in Nephritis and Uremia. T. Tieken, Chicago.
4 Action of Acid-Fast Bacilli when Inoculated Into the Peritoneal Cavity of White Rats. R. C. Rosenberger, Philadelphia.
5 *Vagovisceral Reflexes with Special Reference to the Vagostomach Reflex. A. Abrams, San Francisco.
6 Manifestations of Lithemia in the Spine and Lower Extremities Simulating Orthopedic Conditions. P. Le Breton, Buffalo, N. Y.
7 A Second Chinese Case of Infection with the Asiatic Blood Fluke (Schistosoma Japonicum). H. G. Beyer, U. S. A.

1. **Desmoid Tumor of the Abdominal Wall.**—Montgomery and Bland report the case of a woman, aged 26, who was operated on for a large desmoid tumor of the abdominal wall. The patient had been married at the age of 19 and had two children. The tumor first appeared seven years before operation, and was observed in the lower portion of the abdomen and on the right side, about the middle and lower thirds of the rectus muscle. The growth increased in size gradually for the first six years of its life, but during the last year it grew very rapidly. The tumor after removal measured 76 cm. in its greater circumference, and 66 cm. in its lesser

circumference. It weighed 19 pounds, and had its origin in the sheath of the right rectus. It was of a pearlish pink color, of dense consistence. Microscopically, it was found to be composed of young connective tissue cells. The blood vessels were numerous, and in many areas the vessel walls seemed to be composed of tumor elements. The authors review briefly the history of desmoid tumors and claim that this is the largest thus far reported. They point out that the tumors usually occur in women, and especially in those who have borne children. The tumors appear frequently after childbirth, and therefore Montgomery and Bland believe that pregnancy and labor have some influence in the production of these growths.

2. See abstract in THE JOURNAL, June 3, 1905, page 1801.

3. **Cryoscopy of the Blood and Urine in Nephritis and Uremia.**—Tieken describes the apparatus and technic employed in this work, and reports in detail the result of his observations in over 300 cases of nephritis and allied conditions. He has devoted special attention to uremia, and brings out some interesting facts in relation to it. He concludes that cryoscopy of the urine as usually carried out is of little or no value as an aid to diagnosis in nephritis. Cryoscopy of the blood in nephritis does not show anything abnormal until uremia develops, then there is usually an increase in the molecular concentration, and a corresponding reduction of the freezing point. In several cases these changes in the blood were found before any clinical manifestations of uremia were present. This fall in the freezing point is less marked, or absent, if marked edema or anemia is present. The reduction in the freezing point of the blood seems to correspond with the severity of the disease; that is, in rapidly fatal cases the freezing point is reduced rapidly and to a greater degree than in the mild cases. This fact may aid the physician in making a prognosis as well as in determining the efficiency of treatment. In order to be of the greatest value, it must be done systematically in all cases of uremia, and all disturbing factors must be carefully weighed before drawing any conclusions.

5. **The Vagovisceral Reflexes.**—For clinical purposes, Abrams avails himself of the physiologic fact that the vagus nerve may be subjected to mechanical stimulation by directing the patient to draw the head slowly and forcibly backward. Hypertension of the cervical muscles thus elicited results in inhibiting cardiac action which proves of inestimable service in the differentiation of heart murmurs. The same maneuver enables the physician to recognize an asthmatic lung even in the interparoxysmal period. In the normal individual, when the head is thrown backward and maintained in this position, percussion over the manubrium yields a dull or flat sound, whereas in the asthmatic lung the percussion sound over this region remains unchanged. The latter sign the author refers to as the "tracheal traction test." He finds that by this identical maneuver the lower stomach border may be accurately defined by the dullness supplanting tympanicity by percussion. This taken in conjunction with his "stomach reflex," which causes a recession of the lower border of that organ, enables him to determine the motor power of the stomach as well as the actual lower border of that organ. In other words, after defining the lower border of the stomach by percussion during the time the head is extended, he directs the patient to relinquish extension of the head and proceeds to concuss the Traube area. The difference between the percussional areas obtained after both maneuvers is in direct ratio to the motor power of the organ, which varies in the normal person from 2 to 4 cm. The accuracy of his results has been controlled by the *x*-rays, gastrodiaphane and the conventional methods of determining the lower stomach border.

Medical News, New York.

September 23.

8 *Appendicitis in Children, Study of 70 Cases Occurring Between the Ages of Two and Fifteen Years. C. N. Dowd, New York.
9 Ovarian Transplantation. J. P. Warbasse, New York.
10 *What Means Does the Modern Obstetrician Employ to Prevent Ophthalmia of the Newly Born. J. C. Edgar, New York.
11 Rational Diet in Disease. E. C. Hill, Denver, Colo.
12 Appendectomy with an Uncommon Location of the Appendix and Involving a Modification of the Intermuscular Incision. A. S. Taylor, New York.
13 American Disease; An Interpretation. W. B. Pritchard, New York.

September 30.

14 *The Student Life: A Farewell Address to Canadian and American Medical Students. W. Osler, Oxford, England.
15 Two Experiments in Artificial Immunity Against Tuberculosis. E. L. Trudeau, Saranac Lake, N. Y.
16 Studies on Immunity in Tuberculosis; Properties of the Serum of Immunized Rabbits. Part I. E. R. Baldwin, H. M. Kinghorn and A. H. Allen, Saranac Lake, N. Y.
17 Studies on Immunity in Tuberculosis, An Histologic Study of the Lesions of Immunized Rabbits. Part II. J. L. Nichols, Saranac Lake, N. Y.
18 Vitality of Tubercle Bacilli in Sputum. D. C. Twitchell, Saranac Lake.
19 Serum Diagnosis of Tuberculosis. H. M. Kinghorn, Saranac Lake.

8. **Appendicitis in Children.**—Dowd believes that the peculiarities of appendicitis in children are sufficient to call for special attention. He divides these cases in children into three groups: Early cases in which operations come within the first forty-eight hours; later active cases in which the operations come in the progressive or retrogressive stage; and the interval cases in which operations come after the inflammation has subsided. Dowd states that the percentage of more severe grades of appendicitis is greater in children than in adults, but that children are more likely to recover from severe peritonitis. He sums up the peculiarities of this disease in children as follows: (1) The rapidity and insidiousness of the disease are much greater; (2) the percentage of diffuse and general peritonitis is greater, probably because the omentum is less apt to close the inflamed appendix; (3) the pain is almost always present, but is more difficult to interpret; (4) the vomiting is nearly always present, and is frequently many times repeated; (5) the abdominal palpation, in the majority of cases, is as satisfactory or more satisfactory than in adults, but in a few cases it is absolutely misleading; (6) constipation is much less likely to be present; (7) they have a greater ability to deal with general peritonitis than adults do; (8) during the acute stage of the disease delay is more dangerous than in adults because of the insidious course of the disease and the greater tendency to peritonitis, and immediate operation is to be advised.

10. **Prevention of Ophthalmia in the Newborn.**—Edgar states that no measure should be neglected which can assist in preventing the occurrence of ophthalmia neonatorum. From the standpoint of the obstetrician, he says, there are two means at command for reducing the frequency, if not of practically preventing the occurrence of this condition. These are: First, the antepartum preparation of the maternal passages in cases in which infection is suspected; second, the dropping into each conjunctival sac immediately after delivery of some antiseptic, such as nitrate of silver. Edgar states that he has every faith in Crede's method for the prevention of ophthalmia neonatorum, and that he uses it in both hospital and private cases. He says that after repeated experiments he has found that neither argyrol nor protargol compare with a 2 per cent. solution of silver nitrate for this purpose. Solutions of less strength in his experience do not destroy bacteria, and although solutions of 3 per cent. are harmless they are apt to cause silver catarrh and are not necessary.

14. **The Student Life.**—Dr. Osler said that there are unmistakable signs whereby the genuine student may be distinguished—an absorbing desire to know the truth, an unswerving steadfastness in its pursuit, and an open heart free from suspicion, guile and jealousy. He said that truth is a very simple matter if each one starts with the desire to get as much as possible. No human being is constituted to know the whole truth and nothing but the truth; and even the best of men must be content with fragments, with partial glimpses, never the full fruition. Osler said that the student must remember that his education does not end when he receives a degree and leaves his school or college; to be successful he must remain a student all his life. He said that the *dilettante* is abroad in the land, the man who is always starting tasks and never finishing them, and while many things are studied, few are studied thoroughly. He emphasized the fact that concentration is the price that the modern student

pays for success, and that thoroughness is the most difficult habit to acquire, though it is the pearl of great price, worth all the worry and trouble of the search. He advised the student to divide his time between books and men, and to thank the stars if they had given him the proper sense to appreciate the inconceivably droll situations which will come to his notice at times. He advised the young graduate to take a good weekly and monthly journal and to read them carefully, and advised him to take postgraduate work every few years. He warned against the danger of prosperity and its inducement to idleness, and he advised keeping out of politics. He concluded by saying that to each one the practice of medicine will be very much as he makes it—to one a worry, a care, a perpetual annoyance; to another, a daily joy and a life of as much happiness and usefulness as can well fall to the lot of man. In the student spirit can best be fulfilled the high mission of our noble calling—in humility, conscious of weakness, while seeking strength; in confidence, knowing the power, while recognizing the limitations of art; in pride in the glorious heritage from which the greatest gifts to man have been derived; and in sure and certain hope that the future holds still richer blessings than the past.

Medical Record, New York.

September 30.

20 *Study of Failures in Ophthalmic Practice. G. M. Gould, Philadelphia.
21 *Technic of Abdominal Section. D. Lewis, Chicago.
22 Counterirritation. J. W. Wainwright, New York.
23 Notes on Typhoid Fever in the Philippines. W. D. Bell, Watertown, Conn.
24 Physicians in Fiction. C. D. Spivak, Denver, Colo.

20. **Failures in Ophthalmic Practice.**—Gould sets forth fifteen reasons for failures to relieve the common systemic results or reflexes of eyestrain: (1) The want of a single good refraction school in the world. Instead of ophthalmology, being as Helmholz said, the most accurate and scientific of the departments of medicine, he thinks it the most inaccurate and unscientific; and this is due to the lack of systematic and adequate training in the difficult art of refraction. (2) Bad case recording, omitting the life history of the patient's ailments, or "the biographic clinic," leaves the cure or non-cure unknown or indefinite. (3) The inexperience, ignorance or impertinence of the optician, incapable of doing his proper work, and aspiring to be an oculist, also prevents good results. (4) Changes in the patient's refraction, not followed by retesting and changes in glasses are another source of failure. (5) Incorrect diagnosis of ametropia is the most frequent cause of failure. (6) The presence of head-tilting often causes an inexact placing of the axis of astigmatism. (7) The morbid writing posture, coupled with its result, lateral spinal curvature, continue the consequences of eyestrain. (8) Non-allowance for the patient's personal equations may frequently account for non-success. (9) Tenotomy for heterophoria does not cure the cause of the heterophoria, which is ametropia. (10) Ascription of the morbid symptoms to general disease will not end in cure if they are due to neglected eyestrain. (11) Subnormal accommodation is far more frequently present than is suspected, and distance correction of the ametropia alone will not give relief. (12) "Hysteria" often caused by eyestrain may persist, when chronic, although the eyestrain has been neutralized. (13) Patients living at a distance because they can not be watched closely are likely to prove "failures." (14) Despair of curing in an obstinate case may lead to too speedy renunciation of effort. (15) The secondary results of long-continued eyestrain may be too chronic or deep seated to cure at once or to cure at all. Despite all these reasons, however, it is contended that in no department of medicine are the cures so near 100 per cent., so speedy or so gratifying as in skilled refraction work.

21. **The Technic of Abdominal Section.**—Lewis advocates, in abdominal operations, the use of an incision large enough to enable the operator to see what he is doing; he secures perfect hemostasis throughout the operation; he turns in all surfaces so that only smooth peritoneum is left at the end of the operation; in pus cases removal of the source should be carried out at once, without unnecessarily prolonging the operation and endangering the patient's life. He uses sterile catgut for sutures instead of silk. After operation, he says, no opium should be given and as little anodyne as possible. The bowels should be moved early by calomel and enemata, and thirst relieved by salt solution by rectum. Uterosuspension he disapproves of, since the symptoms are referable to metritis and other conditions, which should be relieved when the prolapsus or retroversion will be cured. In suppurations one should open and drain, but not make the operation any more severe than is necessary, as the patient's strength is easily exhausted. Through drainage may be established through the vagina. Suppuration in peritonitis requires drainage, and irrigation is of value. In cases of rupture of the bowel or traumatism the wound should be closed at once with a Lembert suture, the edges well turned in. When a part of the gut must be removed the author prefers closure of the ends and a lateral anastomosis. In ruptured ectopic gestation the sooner the abdomen is opened the better. The Cesarean section should be used more frequently for contracted pelves, etc. Small fibroids should be enucleated and for large or multiple one supravaginal amputation is to be preferred.

St. Louis Medical Review.

September 23.

25 *Some of the More Unusual Forms of Epilepsy. W. P. Spratling, Sonyea, N. Y.

25. **The More Unusual Forms of Epilepsy.**—Spratling states that the days of speaking of epilepsy are gone, now we speak of the epilepsies. He says that while the general conception of the disease is the grand mal form, there are enough of the milder varieties to deserve consideration, and it is important that they be understood. He states that some neurologists do not believe in the psychic epileptic equivalent, and that in all probability it never exists as a separate entity, but is always associated in some degree with an attack so mild as to be unrecognizable except under close observation. Nocturnal epilepsy may give rise the next day to mental confusion that may be mistaken for the epileptic equivalent, and the only way to satisfy ourselves that this is not the case is to have the patient watched carefully during the night. The epileptic equivalent state, Spratling declares, is in reality an acute insanity, during which the patient unconsciously may be guilty of any crime. He calls attention to the importance of this from a medicolegal standpoint, and says that the welfare of the patient demands that he receive the same watchful treatment demanded by the acutely insane.

New York Medical Journal.

September 30.

26 Tabes Dorsalis. L. H. Mettler, Chicago.
27 Operations for Ingrowing Toenail and Hallux Valgus. V. Kenerson, Buffalo.
28 Rheumatic Poison and Its Treatment. F. L. Satterlee, New York.
29 Sodium Glycocholate in Diseases of the Liver. H. Richardson, Baltimore.
30 Six Lectures on the Diseases of Blood. (Continued.) J. M. Swan, Philadelphia.
31 *Relation of Pleurisy to Tuberculosis. v. S. Ruck, Asheville, S. C.
32 Currents of High Frequency from a Static Machine. F. De Kraft, New York.

31. **Pleurisy and Tuberculosis.**—Von Ruck reviews briefly the salient points which permit of practical deductions, and summarizes them as follows:

1. The pleural cavities are readily accessible to bacterial invasion.
2. The great majority of pleurisies with effusion which occur in otherwise healthy individuals are due to infection with tubercle bacillus. This is proved by autopsy findings, by methods of exact diagnosis and by the subsequent clinical histories of the majority of persons who have been the subjects of such attacks.
3. There is ample evidence to indicate that the so-called idiopathic, dry pleurisies are likewise usually tuberculous.
4. The subjective symptoms of inflammation of the pleural apices often simulate those of myalgia or rheumatism.
5. In every case of pleurisy, or of persistent pain in the chest or shoulder, which can not be satisfactorily ascribed to other causes, tuberculosis should be suspected and a careful physical examination should be instituted to determine, if possible, the existence of a tuberculous process in the lungs, or elsewhere.
6. Even if physical examination in such cases proves negative, the patient should be regarded as tuberculous until the contrary is proved, and should at least be kept under prolonged observation and re-examined from time to time.
7. The tuberculin test may be relied on to confirm or to exclude the tuberculous nature of pleurisy in case of doubt.
8. The application of these principles will often lead to an earlier recognition of tuberculous disease of the lungs especially, and to the institution of treatment at a period which will in many cases secure to the patient most important advantages in his prospects for recovery.

Boston Medical and Surgical Journal.

September 28.

33 Mechanism of the Normal Spine and Its Relation to Scoliosis. R. W. Lovett, Boston.
34 The Appendix Vermiformis. W. A. Brooks, Jr., Boston.
35 Early Diagnosis of Malignant Disease of the Stomach and Intestines. W. H. Robey, Jr., Boston.

Lancet-Clinic, Cincinnati, Ohio.

September 30.

36 Mortality of Appendicitis. C. W. Barrett, Chicago.
37 Relation of the Medical Department of the United States Army to the Profession. W. C. Borden, U. S. A.
38 Ectopic Gestation—Case with Complications. A. Watkins, Little Rock, Ark.

Annals of Surgery, Philadelphia.

September.

39 *Dry Iodin Catgut. A. V. Moschcowitz, New York.
40 *Dentigerous Cyst of the Lower Jaw. G. Barrie, Washington, D. C.
41 *Endothelioma and Perithelioma of Bone. W. T. Howard and G. W. Crile. Cleveland.
42 *Malposition of the Appendix as a Cause of Functional Disturbances of the Intestine. J. A. Blake, New York.
43 *Radical Treatment of Cancer of the Rectum. J. A. Hartwell, New York.
44 Contusion and Laceration of the Mucous and Alar Ligaments and Synovial Fringes of the Knee-joint. C. P. Flint, New York.

39. **Dry Iodin Catgut.**—Moschocowitz has devised a modification of the Claudius method of preparing catgut which does not diminish the tensile strength of the catgut. The catgut is removed from the iodin solution at the end of eight days, and thereafter is kept dry and ready for use in a sterile vessel. Clinical work and experiments with this suture material so prepared demonstrated that it is absolutely sterile; that it is impossible to infect it by ordinary means, and that it does not contain sufficient iodin to act as an irritant on the tissues. Its tensile strength is superior to raw catgut and to that prepared by the sublimate-alcohol method. It is easily and cheaply prepared, and it is absorbed only after it has served the purposes for which it is intended.

40. **Dentigerous Cyst of Lower Jaw.**—At the age of 16 years, Barrie's patient first noticed a lump, the size of a small marble, below the lower left canine tooth, which slowly and gradually increased in size until a year ago, since which time it has rapidly enlarged. The canine tooth gradually became displaced, and lay horizontally on the enlarged alveolar border. The swelling extended from the anterior border of the masseter muscle on the right side to the angle of the jaw on the left. The skin was not inflamed. The man was unable to open his mouth beyond the space of 3 cm., and could not masticate any food. A mesial incision was made from the mucocutaneous border of the lip to the hyoid bone. The separation of the tissues disclosed an ugly looking necrotic cavity. The periosteum and bone substance on the anterior aspect of the mandible above, from the alveolar margin to the protuberentia mentalis below, and laterally so far as the tissues of the wound could be extended on either side, showed complete destruction of periosteum and bone. Sufficient room not being obtainable by the mesial incision, the lip was cut through, and lateral incisions were made below the chin, to the anterior borders of the masseter muscles on either side from the median incision, and the flaps reflected. The mylohyoideus, geniohyoideus and genioglossus muscles, with the periosteum, were then detached posteriorly; mucous membrane incised anteroposteriorly; the necessary teeth extracted; the jaw sawn through at the second molar on the right, and at the last molar tooth on the left side. The mucous membrane was brought together by running suture, thus closing the wound within the mouth. The detached mylohoid muscles were brought forward to the chin wound and sutured. Impressions were made by a dentist of the teeth remaining in the stumps on either side of the jaw—two on the right and one on the left. From the impressions he made gold crowns, which were snugly fitted over the teeth; soldered to these crowns were two heavy strands of platinum wire bent to the shape of the mouth. Before application, this prosthetic measured from crown to crown 1 cm. more than the space between the teeth; that is to say, a line drawn from the molar on the right, across the tongue to the molar on the left, was about 1 cm. shorter than the prosthetic appliance. This acted as a splint and spring, gave no discomfort to the patient, and prevented any contraction toward the middle line by the stumps. It also prevented falling in of the lower lip and allowed perfect cleansing of the mouth and mucous membrane line. At the end of four weeks the wire frame was encased in a hard rubber plate, which the patient is still wearing. This plate is grooved below in its whole length. An upgrowth of tissue is now taking place within the grooved space, which will give a firmer base for the plate, and later it is the intention to make a new plate, with teeth attached, for cosmetic and serviceable purposes. At present the patient gets along very well with the appliance as it is. He has no difficulty in removing and replacing the plate at will, so that it can be thoroughly cleansed.

41. **Endothelioma and Perithelioma of Bone.**—Howard and Crile gives a short résumé of previously reported cases, and also report four new cases, one a primary perithelioma of the left humerus, ending in spontaneous fracture, with metastasis on the tip of the nose, necessitating amputation of the humerus and tip of the nose. Death ensued on the third day. In the second case the tumor was situated in the left humerus, with metastases in the left temporal bone, the pleura, lungs and liver. The patient died about 7 months after the first fracture of the humerus. The third case was one of primary endothelioma springing from the lymph spaces and channels of the lumbar vertebræ, clavicle and ribs, with extensive metastases and a complicating chronic cholecystitis, with gallstones and thickening of the gall bladder. The fourth case was a primary lymphendothelioma of the left femur, with metastases in the inguinal lymph glands. The pathology, histogenesis and clinical history of these tumors are discussed in detail.

42. **Malposition of the Appendix.**—A number of patients operated on by Blake for supposed appendicitis were entirely relieved of their symptoms, yet on examination of the appendix no evidences of inflammation were found. In most of the cases, traction was exerted on the cecum through the appendix by a short mesoappendix; in a few cases the cecum seemed to be suspended by the appendix, being adherent behind the colon. Evidences of inflammation of the appendix were either wholly absent or so trivial as hardly to be sufficient to explain the symptoms. Hence, Blake ascribes the symptoms exhibited by these patients to the relation of the appendix and its mesentery to the cecum rather than to an inflammation of the appendix itself, even if the latter condition were found. He suggests that this relation may also explain the appendiceal pain observed in some cases of movable kidney in which appendicectomy gives relief. In enteroptosis a short mesoappendix may readily cause tugging on the appendix and cecum. Blake also intimates that the constant tug on the appendix and cecum is undoubtedly a cause of true appendicitis.

43. **Cancer of Rectum.**—Hartwell discusses 46 cases, in all of which the patients were operated on for the radical cure of cancer of the rectum, and two cases of inguinal colostomy (1 for cancer and 1 for syphilis of the rectum). Of the 46 patients, 44 were traced to their death or to the present time. A study of these cases shows a probable cure of about 16 per cent., counting freedom of return for three years as a cure. The youngest patient was 23 years old, the oldest 70 years. Seven patients died from the results of the operation, seven died from infection, five patients died from recurrence in less than two years and more than one, four patients died from recurrence in less than three years and more than two. One patient is alive after nine years and eight months; one after four years and six months; two after three years and six months; one after three years and two months; eight patients are alive after less than one year; one after less than two years, and one after less than three years. Hartwell says that an earlier diagnosis and a complete eradication of the growth, done after the following method, promises the most satisfactory results both as regards permanency of cure and functional integrity. An inguinal colostomy is first performed by drawing the sigmoid through an intermuscular incision just external to the left rectus muscle and dividing it between two ligatures. The point of division should be as low in the bowel as possible, thus leaving a large sigmoid pouch

as a reservoir above the new anus. The distal end is closed and dropped into the pelvic cavity, or, if indicated, may be fastened in the lower angle of the wound for the purpose of through-and-through irrigation. In this case, the lower segment must be left sufficiently long not to interfere with the radical incision to be done later. An incision is then made in the linea alba at the same level as the intermuscular incision, or, better, slightly above it and the anterior sheath of the rectus between the two incisions is raised up from the muscle. The proximal end of the gut, with its mesentery, is then drawn under this strong sheath over the rectus muscle and fastened into the skin and fascia wound in the middle line. This opening must not be too small, because it shows a tendency to contract and to form a stricture. The gut is tacked to the peritoneum where it emerges from the peritoneal cavity, and the skin and fascia wound is here closed. A protective dressing can be so applied as to insure almost complete primary union. It is well to insert a small catheter into the proximal gut for a distance of six or eight inches to facilitate the passage of gas during the first days following operation. Three weeks later the radical amputation is done. The patient is put in the exaggerated knee-chest position, which controls to a remarkable degree the venous oozing, and an incision is made from the third sacral vertebra downward to and around the anus. The anus is then tied with a purse-string suture, and the eradication of the growth and all the glands begun. The coccyx and one or two sacral vertebræ are resected, and the presacral tissues as high up as the second vertebra are pushed away from the bone, saving only the sacral nerves. This includes all the lymphatic glands and vessels which are apt to be infected. Ligation of the superior hemorrhoidal artery is next done, and then the gut is free posteriorly. It is now freed laterally and the peritoneum is opened when reached. This permits the drawing down of the rectum even up to the blind end, or, if the end was fastened in the colostomy wound, well up toward that point. In the former case, the whole lower segment will be removed; in the latter the gut is divided between two purse-string sutures, with the actual cautery and the upper end closed. This technic obviates the leaving of a piece of bowel closed at both ends, a procedure which has been shown to be dangerous. Beginning at the upper division, the gut to be removed is separated from its anterior and remaining lateral attachment from above downward, and finally removed in one piece, with all lymphatics and glands attached to it. The peritoneum is sutured, the closed end of the gut, if present, being fastened in the opening, the wound closed, and a small drain put in it. This method can be carried out with no fecal contamination to the wound, and the starting above and working downward has the advantage of avoiding cutting through the infected lymphatic tissues. This advantage is analogous to the one of beginning the removal of breast cancer at the most distal lymphatic glands and working toward the growth in the mammary gland. The detailed histories of the cases are given and the percentage statistics are tabulated.

Bulletin Johns Hopkins Hospital, Baltimore.

September.

45 Cotton Mather's Rules of Health. W. S. Thayer, Baltimore.
46 Movability of the Heart Pneumothorax. W. J. Calvert, Columbia, Mo.
47 Endocarditis in Tuberculosis. H. T. Marshall, Baltimore.
48 *Acquired Cyst of the Conjunctiva Containing an Embryonic Toothlike Structure. E. Stieren, Pittsburg, Pa.
49 The Occurrence of Micrococcus Zymogenes. W. G. Birge, Baltimore.

48. **Acquired Cyst of Conjunctiva.**—Stieren relates the case of a young woman, aged 16, who had a tumor on the left eyeball. The growth was first noticed when the patient was 10 years of age, since when it gradually increased in size. There was no pain, simply a disagreeable feeling. Under local anesthesia the tumor was shaved off with a cataract knife. The cyst contained a small quantity of straw-colored fluid and a well-formed, beautifully white incisor tooth.

Medicine, Detroit, Mich.

September.

50 Bubonic Plague in the Philippine Islands from Its First Outbreak in 1899 to 1905. M. Herzog, Manila, P. I.
51 *Talma's Operation for Cirrhosis of the Liver; Report of an Unsuccessful Case. W. Hessert, Chicago.
52 Motor Education in Convalescence and Invalid States. J. M. Taylor, Philadelphia.
53 Case of Traumatic Dementia. J. Grinker, Chicago.
54 *Experience with the Serum Treatment in Exophthalmic Goiter. S. Kuh, Chicago.

51. **Talma's Operation.**—Hessert operated on a patient aged 42, who had been a heavy drinker for years, for atrophic cirrhosis of the liver, according to the method outlined by Talma, with the exception, however, that no scarifying was done. The omentum was pulled out and the wound sutured in layers. Some of the stitches held the omentum in place, the latter being spread out between the fascia and the skin so as to favor the establishment of collateral anastomosis. The patient died three months after the omentopexy. The observations made on this case and a review of the literature led Hessert to the following conclusions: 1. The Talma operation does not cure cirrhosis of the liver in advanced stages, but in about 40 per cent. of selected cases may ameliorate some of the symptoms, viz., ascites and hemorrhage. 2. Cases in which the liver was enlarged gave a mortality and a higher percentage of improvement than cases of atrophic liver. 3. Biliary cirrhosis associated with enlarged liver, jaundice, fever, and some ascites is best treated by cholecystostomy and drainage of the bile tracts. 4. Many of the cases which were generally improved by the operation differed in no way from some of those not improved, thus giving no guide for future selection of suitable cases. 5. Suture of the omentum between the layers of the abdominal wall gives a lower mortality and a higher percentage of improvement than merely suture to the parietes. 6. Splenopexy may supplant omentopexy. 7. Cases for operation should be selected carefully with regard to the indications and contraindications. Do not operate in advanced cases as a last resort. 8. Drainage increases the danger of septic peritonitis. 9. The operation is not indicated for ascites due to other causes than cirrhosis, and is contraindicated in the presence of renal or cardiac disease and when evidence does not exist that sufficient functional liver substance remains to maintain life.

54. **Serum Treatment of Exophthalmic Goiter.**—An experience with 11 cases of exophthalmic goiter receiving the serum treatment demonstrated that while serum is not a specific it is an excellent palliative. The change in the subjective condition of the patient is very striking. Within a few days after taking the first dose of the serum, every one of Kuh's patients felt much better; they were less nervous; the appetite was improved; the patient gained in weight, and the pulse was influenced more than by any other remedy employed in the treatment of the tachycardia of exophthalmic goiter. Kuh does not consider it very probable that the results from the serum can be permanent, but believes that in all likelihood these patients will have to continue taking the serum, or the treatment will have to be repeated from time to time if permanent results are looked for. In one of the cases reported the patient did not receive any serum for two and one-half years and remained in good condition all that time.

Annals of Gynecology and Pediatry, Boston.

September.

55 *Curative Operation for Procidentia Uteri. E. H. Tweedy, Dublin.

55. **Curative Operation for Procidentia Uteri.**—The first step in Tweedy's operation consists in the removal of a large oval flap of mucous membrane from the anterior vaginal wall, combined with a transverse incision across the cervix, just below the bladder; the latter organ is separated from the cervix and the abdomen opened between it and the uterus. Access to Douglas' cul-de-sac is obtained by a transverse incision made in the usual manner, behind the cervix. These transverse incisions are connected at their extremities by lateral incisions as in the operation for vaginal hysterectomy. An assistant now pulls the cervix forcibly to the left side, while the forefinger passed in front of and the thumb passed behind the broad ligament are made firmly to grasp the base of this structure. The mucous membrane of the lateral fornix is now completely detached from the base of the broad ligament by means of a scissors curved on the flat; during this step the fingers protect the uterine artery and the ureter from injury. A similar procedure is adopted on the opposite side. The

bases of the broad ligaments with their ruptured fibrous bands are now brought into clear view; these robust fibrous bands, known as the *ligamenta transversali colli* of Mackenrodt, are composed of dense connective tissue firmly united to the supravaginal portion of the cervix, contain unstriped muscle fiber, and constitute by far the most important elements in keeping the uterus from prolapsing. A curved needle carrying a fine silk suture (No. 4) is passed through the base of the broad ligament near its pelvic extremity, and the other broad ligament is treated in a similar manner. When these ligatures are brought together and loosely tied in front of the internal os, the cervix is seen to be raised upward and backward—slung, as it were, between these reunited fibers of Mackenrodt's ligaments. The loose knot is now united so as to enable the cervix again to be brought down and to permit of its easy amputation. When this is accomplished and all hemorrhage controlled, the cervix is again pushed up, and the threads attached to the broad ligaments at either side of it are tied and knotted in front of and on a level with the internal os. The broad ligaments are still further secured in front of the uterus by uniting them to that structure with several fine silk sutures. The fundus of the uterus, with its intervening layer of peritoneum, is next secured to the anterior vaginal wall above the urethra, and the further steps of the anterior colporrhaphy completed. All that now remains is to perform Hegar's colpoperineorrhaphy and to unite the vaginal skin to that of the cervical mucous membrane.

56. **Dermatitis Herpetiformis in Children.**—Bowen reviews a report of 6 cases of bullous dermatitis following vaccination made several years ago, and adds 9 cases occurring in children varying in age from 3 to 10 years. The vaccination preceded the outbreak of the skin affection in but 3, and in 2 of these cases the interval of time between the vaccination and the first outbreak was so long as to render a causative association extremely doubtful. Bowen believes that in a considerable number of cases of dermatitis herpetiformis, as it occurs in children, the element of multiformity is wholly lacking, the disease showing itself by the recurrence of groups of vesicles and bullæ without other lesions. In a majority of cases the subjective symptoms, such as itching, burning, pain and tingling, are either absent or very slightly accentuated, so that this feature can not be considered one of the four cardinal symptoms of the disease in children. In certain cases vaccination may be the exciting cause of the eruption, not in the sense of an infection, but as one of probably many agents which may produce this train of symptoms in some people. Certain regions of the body are especially affected by the eruption, viz., the parts about the nose, mouth and eyes, the backs of the hands and wrists, the backs of the ankles and feet, and the genital region. Unna's "hydron puerorum" is to be placed by itself, either as a distinct variety of dermatitis herpetiformis or as an independent affection.

Journal of Cutaneous Diseases, New York.

September.

56 Dermatitis Herpetiformis in Children. J. T. Bowen, Boston.
57 *Treatment of Elephantiasis. H. C. Curl, U. S. N.
58 Case of Keratosis Follicularis. H. C. Curl, U. S. N
59 Successful Treatment of an Extensive Case of Lupus Vulgaris with the X-Rays. J. F. Schamberg, Philadelphia.

57. **Treatment of Elephantiasis.**—Curl reports a case of elephantiasis of the leg from which 7 wedge-shaped strips of skin and subcutaneous tissue were removed, 2 transversely and 5 longitudinally, with excellent results.

Surgery, Gynecology and Obstetrics, Chicago.

August.

60 Cysts of the Thyroid Gland. A Clinical and Pathologic Study. J. C. Bloodgood, Baltimore.
61 Spina Bifida, with Report of Three Hundred and Eighty five Cases Treated by Excision. J. E. Moore, Minneapolis.
62 Status Lymphaticus and the Ductless Glands. R. Park, Buffalo.
63 Amputation in Diabetic Gangrene. C. G. Cumston, Boston.
64 Conservation of the Parietal Motor Nerves in Abdominal Section. V. P. Blair, St. Louis.
65 Common and Hepatic Duct Stones. L. L. McArthur, Chicago.
66 De Laskie Miller. A Memorial Address. J. C. Webster, Chicago.
67 Pelvic Infections in Women. T. J. Watkins, Chicago.
68 Prolonged Lavage a Preventive of Ether Vomiting After Operation. G. S. Brown, Birmingham, Ala.
69 Safe, Simple and Sure Cure for Ganglion. B. B. Cates, Knoxville, Tenn.

Archives of Otology, New Rochelle, N. Y.

August.

70 Nature and Aim of Objective Measurement of Hearing, and the Use of the Objective Audiometer. Professor Ostmann, Marburg-on-the-Lahn.
71 Study of the Disturbance of Function in Acute Perforative Otitis Media. Ostmann, Marburg.
72 Annual Report of the Otolaryngologic Clinic and Polyclinic in Basel. E. Oppikofer, translated by A. Wiener, New York.
73 Two Cases of Mastoidectomy, Sinus Thrombosis, Ligation and Resection of Jugular Vein; Recovery. J. F. McKernon, New York.
74 Disadvantages of the Dry-gauze Dressing After the Operation for Septic Thrombosis of the Lateral Sinus. H. Gifford, Omaha, Neb.

Texas State Journal of Medicine, Fort Worth.

August.

75 Necessity for Better Preparation for Emergency Work by the Country Practitioner. J. J. Bell, Tyler, Texas.
76 Importance of Attention to So-called Minor Details in Surgery. W. B. Russ, San Antonio.
77 Parasites in the Blood. A. E. Thayer, Galveston.
78 Pathology of Malaria. W. Shropshire, Yoakum.
79 Differentiation of Malarial Parasites by the Microscope. J. T. Moore, Galveston.
80 Frontal Sinusitis. W. R. Thompson, Ft. Worth.
81 Care of Epileptics. J. H. Eastland, Abilene, Texas.

Texas Medical News, Austin.

August.

82 General Diseases Among the Insane. M. L. Graves, San Antonio.
83 The Mosquito as an Etiologic Factor in Disease. D. Munroe, Cameron, Texas.
84. Delay of Old Age and the Alleviation of Senility. C. G. Stockton, Buffalo.

Medical Sentinel, Portland, Ore.

August.

85 Examination and Commitment to State Hospitals of the Insane. W. J. Howells.
86 Psychical Phases of Anesthesia. E. Crutcher, Butte, Mont.
87 Neurone Theory by the Latest Authorities. R. L. Gillespie, Crystal Springs, Ore.
88 American Physicians. G. Barr, Portland.

Pennsylvania Medical Journal, Athens.

August.

89 Brain Tumor and Trauma. E. W. Holmes, Philadelphia.
90 *Advantages of Performing Capital Operations in Selected Cases without Anesthesia. J. J. Buchanan, Pittsburg.
91 Study of the Contractures in Organic Nervous Diseases and Their Treatment. T. H. Weisenburg, Philadelphia.
92 Prevalence of Malaria in Pittsburg. J. A. Lichty, Pittsburg.
93 *Operative Treatment of Tuberculous Rectal Fistula in the Tuberculous. J. C. Brick, Philadelphia.
94 Obstetric Superstitions. W. C. Kissinger, New Castle.
95 Case of Primary Cancer of the Lung. J. P. Dalbey, Gettysburg.

90. See abstract in JOURNAL, Oct. 29, 1904, page 1332.

93. Id. July 8, 1905, page 129.

Medical Examiner and Practitioner, New York.

August.

96 Medical Examiner and His Work. D. Lewis, Chicago.
97 Relation of the Life Insurance Examiner to Local Sanitation. J. R. Wetherbee, Portland, Ore.
98 Special Instruction of Medical Students in the Methods of Examination for Life Insurance. W. R. Cluness, San Francisco.
99 We Can Do Better Work for Our Companies. Do They Want It? W. Moore, New York.
100 Collision or Collusion Between Agent and Examiner. W. F. Amos, Portland, Ore.
101 Influence of Heredity in Life Expectation. J. Nevin, Jersey City, N. J.

Journal Medical Society of New Jersey, Newark.

September.

102 Prophylaxis in Gynecology. G. H. Balleray, Paterson, N. J.
103 Ectopic Gestation. E. Staehlin, Newark.
104 Therapeutic Agents of Animal Origin. G. E. Reading, Woodbury, N. J.

Louisville Monthly Journal.

September.

105 Acute Articular Rheumatism. C. D. Mansfield, Stanton, Ky.
106 Cholesteatoma. A. O. Pfingst, Louisville.
107 Nephroureterectomy. J. G. Sherrill, Louisville.

Vermont Medical Monthly, Burlington.

July 25.

108 Acute Articular Rheumatism. L. W. Burbank, Cabot.
109 Serums and Animal Extracts in Therapy. G. F. B. Willard, Vergennes.

Woman's Medical Journal, Toledo, Ohio.

August.

110 Pneumococcus General Infection—Intestinal Tract, Lungs, Meninges. Recovery. M. M. S. Johnstone, Chicago.
111 Uterus-Biseptum. H. Ruud, Chicago.

Journal Mississippi State Medical Association, Vicksburg.

September.

112 Beginning of Indigestion. H. M. Folkes, Biloxi.
113 Pulmonary Edema. T. J. Ray, Centerville.
114 Diagnosis of Pleurisy with Effusion. E. A. Cheek, Arcola.

115 Infections. H. L. Sutherland, Rosedale.
116 Ileocolitis, Its Treatment. B. W. Inman, Leota.
117 Autointoxication. J. W. Gray, Jr., Clarksdale.

Buffalo Medical Journal.

September.

118 Irritability of the Bladder. J. H. Dowd, Buffalo.
119 Kidney Disease. N. W. Wilson, Buffalo.
120 Eye Symptoms of Infantile Scurvy. I. Snow, Buffalo.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

September 16.

1 X-Ray Diagnosis of Renal Calculus. M. Smart.
2 Treatment of Ringworm of the Scalp by the X-Rays. J. M. H. Macleod.
3 Recent Cholera Epidemic in Persia. J. Scott.
4 *Rats in Relation to Plague. B. Skinner.
5 *An Investigation on the Regeneration of Nerves. B. Kilvington.
6 Probable Explanation of Some Drowning Accidents. H. Lawrie.
7 Remarkable Case of Wound of the Abdomen with Prolapse of the Large Intestine; Recovery. O. W. Andrews and F. Cock.
8 *Method of Guarding the Perineum in Labor. W. J. Caie.
9 Case of Quadruplets. L. W. Roberts.
10 Primary Malignant Growth of Liver. J. B. Bays.

4. See abstract in JOURNAL, Sept. 23, 1905, page 947.

5. **Regeneration of Nerves.**—In this article Kilvington reports the results of experiments on dogs. From these he concludes that both clinical and theoretical considerations point to nerve splitting being preferable to suturing two distal nerves directly to the central end of one of them. He suggests that nerve splitting be made use of in suitable cases of anterior poliomyelitis.

8. **Method of Guarding the Perineum in Labor.**—Caie says that in the hands of an expert obstetrician rupture of the perineum should be a very rare accident. He states that the various methods of safeguarding the perineum now in use are weak in the following points: (a) In attempting to pull forward the vertex by passing the left hand between the thighs of the mother and employing traction on the scalp. (b) In "supporting the perineum" in the direct method by pressure thereon of the concavity between the thumb and forefinger of the right hand. (c) In endeavoring to push the fetal head forward by the indirect method either by inserting two fingers in the rectum or by pressure on the anus. (d) In the delivery of the shoulders. The following is the method which he has employed successfully:

When the fetal head is moderately distending the perineum, the latter and the parts adjacent are thoroughly dried with a hot sterilized towel; all moisture must be wiped off. At the moment when the tension on the perineum is approaching its maximum—this can be determined easily with a little experience—the left hand of the accoucheur is employed in pressing slightly on the vertex to prevent any premature or sudden expulsion of the head; there is no necessity for passing the arm between the thighs of the mother. The right hand then grasps the perineum in the manner alluded to in (b), but with this important difference: that between it and the perineum is interposed a hot sterilized towel, in such a way that the edge of the concavity between the thumb and the index finger, the edge of the towel, and the lip of the perineum are just in line with each other, a double fold of the towel to fit into the apex of the concavity having previously been made, to supply the deficiency alluded to at that point. Firm pressure is then exerted at every pain, through the bitemporal diameter of the fetal head, if there appear to be any undue stretching or tendency to laceration. No attempt is made to push the head forward until the occiput ceases to engage behind the pubic arch. By these maneuvers three purposes are served:

1. By firm pressure through the bitemporal diameter premature extension of the head is prevented, without retarding its progress.
2. By means of the drying of the parts and the hot towel a much firmer grip, and consequently much greater support, of the perineum can be obtained than could possibly be produced by the bare hand on a surface which is usually very slippery.
3. Uniform pressure is obtained on all parts of the perineum, and the part where there is most stretching receives its due measure of support.

The author calls attention to the danger of laceration from the shoulders and says that if after the head is born gentle traction is made backward the next pain will generally cause the anterior shoulder to free itself from its position behind the pubic arch, while the perineum lies over the posterior shoulder and is subjected to only a moderate degree of tension. If the outlet is small, the anterior arm can usually be extracted with little difficulty after the shoulder, thus substituting a much smaller diameter of the child. If the posterior shoulder be allowed to be born first, the anterior shoulder remains firmly fixed behind the pubic arch, while the posterior shoulder presses against the perineum and again dilates it to its utmost limit.

The Lancet, London.

September 16.

11 *Angina Pectoris and Allied Conditions. T. Oliver.
12 Pneumothorax in Tuberculous Subjects. F. P. Weber.
13 Primary Tuberculosis of the Pharyngeal Tonsil, Associated with Tuberculous Glands. F. Ivens.
14 Eclampsia with Death on the Sixteenth Day After Delivery from General Septic Peritonitis Due to Rupture of Abscess in the Spleen. J. C. H. Leicester.
15 *Germ Centers of Lymphatic Glands and Secondary Carcinomatous Deposits. J. B. Cleland.
16 Aneurismal Dilatation of the Right Subclavian Artery, the Innominate and the First Part of the Common Carotid. H. G. Barling.
17 Industrial Mercurial Poisoning. H. J. Walker.
18 Tuberculous Ulcerations of the Ascending Colon Simulating Appendicitis. G. G. Turner.
19 Primary Suppurative Parotitis. J. W. Carr.
20 Congenital Hypertrophic Stenosis of the Pylorus; Treatment by Gastric Lavage with Complete Recovery. A. J. Blakland.
21 Acute Illness Following Inoculation with Antityphoid Vaccine. W. J. Lindsay.

11. **Angina Pectoris and Allied Conditions.**—Oliver reviews at some length the varieties of angina pectoris, the symptomatology and the pathology. In regard to treatment he says that for patients with pseudoangina much can be done. In all cases of angina, whether true or false, attention should be paid to the condition of the stomach and bowels. Dyspeptic troubles must be rectified and remedies given to check decomposition of food to prevent flatulence and to relieve constipation. Tobacco smoking and the use of alcohol must be entirely prohibited in some people and reduced to a minimum in others. In true angina the patient is living on the brink of a precipice and all worry and anxiety should be avoided. Oliver believes that amyl nitrite is the most useful drug in this condition and that inhalation of a few drops in many cases will cut short an attack. When there are signs of a failing heart behind the peripheral arterial constriction, he thinks it is often desirable to combine digitalis or nux vomica with, for example, ethyl nitrite. The other nitrites, such as nitroglycerin (liquor trinitrini) he thinks are equally useful. In certain individuals with angina pectoris in whom the arteries are so diseased that they do not respond equally over the body to the stimulus of the amyl nitrite, this preparation and its congeners do harm. The arterial tension is already low, and as a consequence some unpleasant effects are produced. In some cases of true angina, morphin or other opium preparations are the only drugs which give relief. In many cases, even when there is no syphilitic taint, iodid of potassium will lengthen the interval between the attacks.

15. **Germ Centers of Lymphatic Glands.**—Cleland calls attention to the resemblance between the "germ centers" of lymphatic glands and secondary carcinomatous deposits. He states that there is no doubt that the former have often been mistaken for the latter, even by competent men, and that cases in which sections from the primary lesion have left the question of malignancy unsettled have been finally classified as such on the finding these apparently secondary deposits in the adjacent lymphatic glands. He states that the cells of which these so-called germ centers consist are larger than the surrounding lymphocytes and have more protoplasm and a larger vesicular nucleus. The whole area stains, too, to a much lighter degree than the parts around. Mitotic figures are nearly always numerous and at the edge of the area the cells rapidly, but by distinct gradations, become converted into lymphocytes, so that no hard and fast line of demarcation limits the area. The areas are usually small and indistinctly circumscribed and in such conditions are not likely to be mistaken for a cancerous growth. In certain circumstances, however, associated with chronic irritation, they assume a most striking appearance. This is associated with increase of size and great increase of mitotic activity in the areas and suggests the idea that it is a form of compensatory hypertrophy. These hypertrophied germ centers form very sharply-defined spherical or oval areas, taking a much lighter stain than the parts around and about as deep as that of an epithelial deposit from the breast. The cells composing them are of nearly uniform size and a little smaller and much more regular than those of cancer; they are closely packed together with very little stroma detectable be-

tween them, though an occasional capillary vessel may be noticed; the nucleus resembles closely that of an epithelial cell; and mitoses are often more numerous or as numerous as in the cancerous growth. All these characters show how hard it may be to distinguish the one from the other. The most important difference between the two is, however, found in the boundary zone of each. The somewhat larger and more irregular cells of the carcinoma are separated sharply and distinctly and often by a thin zone of fibrous stroma from the surrounding lymphocytes and each individual cell at the periphery can be relegated at once and satisfactorily into one or other class of these two. In the outer zones of the germ centers, both germ center cells and lymphocytes tend to be arranged in concentric rings formed of a delicate fibrous tissue and all gradations are seen between undoubted germ-center cells, on the one hand, and undoubted lymphocytes on the other. Under a low power of magnification the germ center often seems sharply delimited from the surrounding parts and the cancerous deposit is less distinctly outlined; with higher magnifying powers this appearance is reversed and the germ center is found, on careful observation, to grade into the lymphatic tissue around while the carcinomatous growth is sharply defined. If during an examination of the lymphatic glands in a doubtful case of carcinoma the possible presence of these hypertrophied centers be borne in mind, it is not likely that any mistake will be made; but should an area of cells be encountered which gives rise to any doubt a careful consideration of the various points of difference enumerated above will enable the observer to satisfy himself as to its nature and may relieve also the mind of the surgeon and of his patient of the distressing dread of a recurrence of a disease which is not there.

Journal of Tropical Medicine, London.

September 15.

22 Methods Employed by Kelantan Malays in the Treatment of Puru or Yaws. J. D. Gimlette.
23 Zambesi Ulcer. L. E. Ashley-Emile.
24 *Effect of Pilocarpin in Beri-Beri (Wet Type). P. N. Gerrard.
25 Malignant Disease in South Formosa. J. L. Maxwell.

24. **Pilocarpin in Beriberi.**—Gebhard reports a case in which pilocarpin was used in beriberi with good results. The most interesting point, he states, was the rapidity with which the edema disappeared after the administration of the drug, as well as the marked improvement in the disease itself. In the case reported, the patient was put on a tonic preparatory to being discharged from the hospital and he immediately suffered a relapse. He was again given pilocarpin and the symptoms subsided.

Indian Medical Record, Calcutta.

August 28.

26 Hygiene and Therapeutics in England in the Days of Queen Elizabeth. J. Knott.
27 Chloroform as a General Anesthetic and Its Administration. R. V. Bapat.

Dublin Journal of Medical Science.

September.

28 Sedatives and Narcotics in Treatment of the Insane. S. J. Cullum.
29 Fracture of the Tibia. E. H. Bennett.
30 Case of Intestinal Obstruction by a Gallstone. T. E. Gordon and W. M. A. Wright.

Glasgow Medical Journal.

September.

31 Leucocythemia, Lymphadenoma and Allied Diseases. R. Muir.
32 Perforation of an Ulcer of the Duodenum, with Remarks on the Diagnosis and Treatment of this Affection. C. G. Cumston, Boston, Mass.
33 Old Glasgow Hospitals. J. Erskine.

Journal of Laryngology, Rhinology and Otology, London.

September.

34 Considerations Regarding Ligature of the Internal Jugular Vein on Account of Ear Disease. D. Grant.
35 Continuity of the Several Cavities of the Middle Ear, with Observations on Their Development and on the Treatment of Acute Septic Inflammation of the Tympanic Cavity (so-called Otitis Media). A. H. Young and W. Milligan.

Presse Médicale, Paris.

36 (No. 72, September 9.) *L'épistaxis grave des artérioscléreux. E. Escat.
37 *La leucémie chez les animaux. P. E. Weil and Clerc.
38 (No. 73.) Le "quartier des tuberculeux" à l'hôpital Boucicaut. M. Letulle.
39 *Alcool et strychnine. Alcool et venin. C. Valentino.
40 Faradisation dans les syncopes chloroformiques. J. M. Villette.

36. **Threatening Epistaxis in Arteriosclerosis.**—Escat has had opportunity to make careful rhinoscopic examination in 43 cases of threatening epistaxis in arteriosclerotic subjects. It has revealed that the bleeding came from sclerous degeneration of the artery of the nasal septum. This sphenopalatine artery divides generally into several branches and runs a superficial course in the lower part of the septum. He gives illustrations of the points where the hemorrhage usually occurs and also where secondary hemorrhage may be expected. When the hemorrhage does not yield to the ordinary measures, he advises the application of cotton saturated with hydrogen dioxid. This is left for twenty-four hours or longer in severe cases. When removed the points can be thermocauterized or chromic acid may be applied and the nose tamponed. When the tampon is finally removed the patient must be supervised. He should carry cotton constantly with him in case of a recurrence, and should refrain from blowing his nose. Penghawar is particularly useful for a provisional tampon. Adrenalin should be avoided in arteriosclerosis. If it is impossible to discover the focus, the entire wall of the septum should be cauterized and the passage tamponed with penghawar or cotton. Posterior tamponing, he thinks, should be completely rejected.

37. **Leukemia in Animals.**—Weil has observed various forms of leukemia in 5 dogs and in a horse in the last five years, all old animals. Nocard reported 9 horses, 5 cows, 22 dogs and 1 cat affected with leukemia. The picture was about the same as in man, with the exception of 2 out of Weil's 5 dogs. The symptoms and blood findings in these differed materially from those known in man. Attempts to transmit the leukemia from one animal to another have always proved failures. One of the dogs was treated with the *x*-rays, and the results were similar to those observed in the clinic. The leucocytes dropped from 163,000 to 56,000; the polynuclears fell from 95 to 80 per cent., while the macrophages increased from 1 to 14 per cent. Examination of sections of tumors from the living animal showed zones of degeneration in the peripheral regions which had been exposed to the action of the rays, with accumulation of macrophages. These findings suggest that the curative action of the rays is due chiefly to leucolysis and macrophagia.

39. **Alcohol and Strychnin, Alcohol and Venom.**—Valentino has been continuing his experimental research which has demonstrated that alcohol owes its action on the brain to its dehydrating power. It is taken up by the brain in larger amounts than by other tissues, and the dehydration is more intense in the brain on this account, and is the cause of the alcoholic coma. His experiments with strychnin and with snake poison have shown that the dehydrated brain does not take up these poisons as readily as the normal brain. Animals under the influence of the dehydration consequent on injection of large doses of alcohol were able to bear otherwise fatal doses of strychnin or snake poison without injury. The alcohol dehydrating the nerve substance causes an influx of serous fluids into and through the cells, and this washes away the poison seeking to fasten on the cells. These experiments confirm the traditional benefit of large doses of alcohol in snake poisoning, and show that the stupor of drunkenness is due to dehydration of the nerve centers by the alcohol.

Semaine Médicale, Paris.

41 (XXV, No. 35.) *La théorie des ions et ses applications en biologie. L. Ambard and A. Mayer.
42 (No. 36.) Pure Food and Drug Legislation in France.—La répression des fraudes dans la vente des marchandises et des falsifications des denrées alimentaires et des produits médicamenteux en France.
43 *De l'hémophilie chez la femme (in women). R. de Bovis.
44 (No. 37.) *Du paludisme à forme de péritonite algue. V. Gillot.

41. **Ion Theory in Biology.**—The ultramicroscope has shown that colloids are merely particles in suspension, too small to be seen by an ordinary microscope. Recent researches have demonstrated that precipitation is dependent on the number and valency of the ions in the liquid as well as whether these ions are electrically negative or positive. Des Bancels has lately succeeded in activating the pure pancreatic juice without kinase. Pure pancreatic juice does not digest albumin.

He conceived the idea that it might be possible to make it digest albumin by precipitating the pancreatic juice on the albumin according to the principles of colloid precipitation. He used for the purpose salts of a bivalent base, but still there was no tendency to digest the albumin. He finally succeeded by sensitizing the albumin with another colloid, toluidin blue. This stains the albumin, but does not digest it, but modifies it in such a way that the pancreatic juice then attacks and digests it. Ambard refers also to Loeb's experiments which showed that certain sea animals die in water containing only monovalent ions, while they thrive in water containing small amounts of bivalent salts or mere traces of trivalent salts. The theory of ions seems to throw light on the biologic phenomena of agglutination, hematolysis and digestion, which scientists are now striving to explain by purely physicochemical laws. The recent international congress on radiology of Belgium was officially entitled "Congrès de Radiologie et Ionisation."

43. **Hemophilia in Women.**—De Bovis reviews the literature on the subject of hemophilia and its transmission through generations. He devotes a chapter to its effect on the genital life, the literature showing that pregnancy is rather favorable than otherwise to hemophiliac women, the blood apparently becoming less persistently fluid. In 150 cases of delivery in hemophiliac women, excessive hemorrhage occurred immediately afterward in 69. In 2 cases the mothers were unable to nurse their children, as it seemed to increase the tendency to hemorrhage. Abortions are noted in the history of some hemophiliacs. It is possible that hemophilia may exist in a rudimentary "fruste" form. In a case under De Bovis' observation a iv-para suffered from uterine hemorrhage during a fifth pregnancy. Artificial evacuation of the uterus was suggested, but the curetting was followed by uncontrollable fatal hemorrhage. The patient was not a hemophiliac in the strict sense of the word, but nothing except the hemophiliac diathesis can explain the uncontrollable hemorrhage in this case. De Lee has also reported a case of fatal hemorrhagic diathesis with premature detachment of the placenta, and yet the uterus had contracted. Ahlfeld and Switalsky have also reported similar cases, all distinguished by postpartum hemorrhage occurring in a woman whose menses were always copious, with a history of abortions or of hemorrhagic accidents in herself or in some relative. In De Bovis' service during 1903 there were 476 deliveries. The women had a record of menstruation for more than five days in 153 cases and of less than five days in 323. Postpartum hemorrhage occurred in 13 per cent. of the former and in only 8 per cent. of the latter. The hemophiliac tendency may also manifest itself at puberty and at the menopause, remaining latent at other times. Hemophilia, therefore, is a condition which occurs much more frequently than is generally supposed, and women are affected as often, if not oftener than men, but the tendency does not reveal itself in women except at times of physiologic stress naturally tending to hemorrhage. At other times it may be that menstruation acts as a kind of safety valve. Grosglik and Floderus have collected 43 cases of hemophiliac hematuria, and Kroukovsky has related a case of bleeding from the nipple for two years in a woman of 52 who had nursed ten children. De Bovis thinks that marriage should be forbidden in families of notorious bleeders, both to men and women. He has tried injections of gelatin in one case, but without any result. He ascribes the occasional success of general treatment to the fact that the patients are usually neuropathic. The hemorrhages ceased in Anderson's almost moribund patient when she was told to drink "all the champagne she wanted." Brook reported in 1901 an attempt at "antenatal treatment of hemophilia." He administered alternately to a hemophiliac woman during her pregnancy calcium chlorid, strychnin, iron and arsenic, and the results apparently were a complete success. The main reliance in the presence of hemophiliac bleeding is on very hot injections, swabbing with adrenalin and tamponing. Gelatinized dressings might also be used, as suggested by Sahli, or Henkel's plan of compressing with forceps the uterine arteries at the base of the broad ligaments. Steam cauterization of the uterine cavity might also be tried, and, as a last resort, ablation of the bleeding organ. It is generally noticeable that hemophiliacs tolerate operation on the large arterial trunks better than superficial wounds. He relates a number of instances of this paradoxical fact, and remarks that it justifies hysterectomy in case of threatening menorrhagia or metrorrhagia. In 10 cases of death from puerperal hemorrhage in hemophiliacs, 2 occurred after premature delivery and 3 after abortion. The best plain is to await spontaneous expulsion or natural termination of the pregnancy, ready for any emergency, even for hysterectomy.

44. **Malarial Peritonitis.**—Gillot has had occasion to observe several cases of what was apparently acute peritonitis, suggesting perforation in one instance, but the laparotomy revealed the absolute soundness of the peritoneum and intestines. The blood was not examined in this case, but in another, presenting similar symptoms, examination of the blood revealed the parasite of malaria and recovery was rapid under quinin. He urges the possibility of a malarial origin for the syndrome of acute peritonitis occurring in a man or woman in a malarial country or known to have malarial antecedents, even if no parasites are found in the blood. The quinin will not do much harm, even if the peritonitis is not of a malarial nature. In a woman in the fifth month of pregnancy, the symptoms of peritonitis subsided after subcutaneous injection of .75 gm. of quinin, but in his other cases he injected twice this amount. One patient required three repetitions of this dose in the course of a week before convalescence was finally established, although marked improvement followed each dose.

Archiv f. klinische Chirurgie, Berlin.

Last indexed page 293.

45 (LXXVII, No. 1.) *Zur Pathologie und Therapie der Hirschsprung'schen Krankheit (Megacolon congenitum). G. Perthes.
46. *Surgery of Kidney.—Ueber Indikationen und Resultate der Nierenexstirpation, speziell bei Nierentuberkulose. T. Rovsing.
47 *Rückblick auf die Nierenchirurgie seit Einfuhrung des Ureterenkatheterismus. L. Casper.
48 *Nephrectomies for Tuberculosis of Kidney and Functional Diagnosis.—Welchen Einfluss haben die funktionell diagnostichen Methoden auf die Sterblichkeit der Nephrektomien wegen Nierentuberkulose gehabt? J. Israel.
49 *Ueber Prostatectomie. C. Czerny.
50 Congestive Hyperemia for Acute Inflammations.—Das Verfahren der Stauungshyperämie bei akut entzündlichen Krankheiten. A. Bier.
51 *Present Status of Spinal Anesthesia.—Ueber den jetzigen Stand der Rückenmarksanasthesie, ihre Berechtigung ihre Vorteile und Nachteile gegenüber anderen Anasthesierungsmethoden.—Id.
52. *Ueber die Naht von Lungen Wunden (suture). C. Garré.
53 100 Fälle funktioneller Nieren Diagnostik. E. Glaser.
54 Ueber Elephantiasis lymphorrhagica des Penis und des Skrotums infolge narbiger Unterbrechung der inguino-cruralen Lymphbahnen. G. Negroni and A. Zoppi.
55 Die aczessorischen Gänge am Penis (passages). A. Stieda.
56 Ungewöhnliche Form der Verhornung bei einem Hautcarcinom. P. Glimm.
57 Zur Radikal Operation des Nabelbruches (umbilical hernia). R. v. Baracz.
58 *Injuries from Japanese Firearms.—Ueber Verletzungen durch japanische Geschosse. J. B. Seldowitsch.
59 Die Aetiologie der indirecten Metatarsal Fracturen. A. Kirchner.
60 Bruch der unteren Epiphyse des Radius bei Automobil Mechanikern (fracture). C. Ghillini.
61 *Eine neue Methode der Sterilisation chirurgischer Messer (instruments). O. Grosse.
62 Ein chirurgischer Universal-Sterilisator.—Id.
63 Ein scheinbarer Bruch des Os navicularis tarsi (apparent fracture). Momburg.

45. **Congenital Megacolon.**—Perthes describes in detail a case in which he restored a lad of 15 to health after five laparotomies in the course of three years. A valve formation in the sigmoid flexure was the principal factor in the trouble. Examination of the cadaver in another case showed a somewhat similar mechanism, as also was discovered in a third case. It is possible for the mechanical obstruction to be a valve formation somewhere in the intestines, generally in the flexure, or it may be the result of multiple windings or folds. Volvulus of the flexure has also been observed. He concludes from the lessons learned from his case and from the autopsy findings that in another case of congenital megacolon, not due to a stricture, he would proceed to make a wide artificial anus in the descending colon. He would then empty the flexure and the colon during the next few days by cautious irrigation from the rectum. The shape of the abdomen and of the thorax is altered so much by the relief from the distension that it is wise to wait a few weeks or months

before attempting further interference. During this period the existence of the valve in the flexure is verified, and it is removed by a laparotomy after the flexure and colon have been rinsed clean from the new anus. Colopexy or resection of the part of the flexure, with or without invagination, should then be done to meet the indications. If further experience confirms what he thinks is the comparative frequency of valve formation in the flexure as the cause of Hirschsprung's disease, then operative treatment offers promise of fine results.

46 to 49. **Functional Diagnosis of Urinary Apparatus and Surgery.**—The main points in these various communications have been summarized in previous articles by the writers and abstracts published in these columns.

51. **Spinal Anesthesia.**—Bier is proverbially cautious, but he now affirms that although spinal anesthesia is yet far from being perfected, it is already sufficiently advanced for general adoption, especially in cases in which total anesthesia is considered dangerous. It is not entirely free from danger; no intoxication of any kind is absolutely harmless, and spinal as well as general anesthesia is an intoxication. He calls attention to the remarkable way in which the organism tolerates under anesthesia much more severe injuries than without it. Unilateral pneumothorax, for instance, in case of resection of the thoracic wall, or removal of a cyst in the lung, scarcely affects the pulse and respiration in the anesthetized subject. Experiments on dogs showed that they were able to survive being shot at several times until they succumbed to the effects of the hemorrhage; in unanesthetized animals the first shot generally kills, more from psychic shock than from the wound inflicted. Spinal anesthesia reduces the sensibility to shock the same as general anesthesia in these circumstances. Spinal anesthesia, he proclaims, is especially indicated for elderly and debilitated patients. They bear it well and are able to eat at once after the operation. Its superiority in these cases is particularly manifest in comparison of the condition after spinal and general anesthesia for removal of carcinoma of the rectum. The "spinal" patients appear as if they had passed through merely a minor operation, while the "generals" are sick and miserable for days. He is convinced that spinal anesthesia will materially reduce the mortality in these cases. It is a great advance in military and in veterinary surgery, and will undoubtedly aid in physiologic experiments. Improved technic has reduced the dangers to the vanishing point. During his last 300 cases the spinal anesthesia failed in only 4 per cent., and excluding the cases in which the technic was at fault, the failures were in only 2.33 per cent. The moral effect of being a witness to the operation does not seem to detract from its use, as patients who have submitted to both the spinal and general anesthesia almost invariably express their preference for the former, especially the male patients. The addition of a suprarenal preparation to the cocain or stovaine he regards as the most important progress in the technic. He has not had a serious mishap in his 305 cases of spinal anesthesia with this technic.

52. **Suture of Wounds of the Lung.**—Garré has reviewed 700 cases of injuries of the lungs recorded in recent years. He found that 40 per cent. of the 700 cases terminated fatally under conservative treatment. More than half of the 37 cases of rupture of the lung terminated fatally, 38 per cent. of the 100 stab wounds, and 30 per cent. of the 535 bullet wounds. He points to these figures as justifying surgical intervention, and describes a case in which he sutured a ruptured lung for nearly 7 cm., and beheld the previously collapsed lung in the almost moribund patient, a lad of 11, reassume its functions at once. He summarizes the eight published cases of stab or bullet wounds on record treated by suture. Six of the patients recovered. In conclusion he outlines the technic, urging a broad incision, and suture of the lung tissue with fine silk, not drawing the thread very tight.

58. **Injuries from Japanese Firearms.**—Seldowitsch graphically describes his surgical experiences at Tieling after the battle of Liao-yang. His observation has convinced him that firearm wounds of skull and brain—to which his article is principally devoted—require operative intervention almost without exception. The prognosis is bad, but more favorable on the whole, than firearm wounds of the chest. Wounds of the abdomen proved most serious of all.

61. **New Method of Sterilizing the Surgeon's Knives.**—Grosse was experimenting with the sterilization of catheters when he made the discovery that an infected catheter enclosed in a glass cylinder, tightly corked at both ends, became entirely sterile after ten minutes of steam disinfection. The steam does not reach the catheter, and yet it is sterilized. He explains this by assuming that the minute amount of moisture contained in the ordinary air in the cylinder is sufficient to ensure the sterilization of the catheter at the temperature of the steam outside. He at once applied this discovery to the sterilization of knives and is enthusiastic over the fine results attained. The knives come out perfectly dry, unspecked and sharp. He uses an ordinary test tube for the knives, corked tightly, the cork held in place by a small chain and coil of wire around the test tube. The knives rest in a horizontal wire frame inside the glass tube to avoid contact with each other or with the walls. He adds a number of tests made with knives thus disinfected, showing the perfect sterilization thus realized in steam at a temperature of from 98 to 100 C. (boiling point). Hours would be required to accomplish the same result with dry heat.

Berliner klinische Wochenschrift.

64 (XLII, No. 34. August 21.) *Lumbalanästhesie mit Stovaine. O. Tilmann.
65 *Ueber die Beziehungen der Hypoleukocytose zum Knochenmark (bone marrow). C. Gütig.
66 Tuberkulin-Behandlung und Tuberkulose-Immunität. Jurgens.
67 *Zur bakterioskopischen Frühdiagnose der Lungentuberkulose. C. A. Blume.
68 Ueber die Anwendung des Styptols bei Dysmenorrhœ und Gebärmutterblutungen (uterine bleeding). K. Abel.
69 Nature of Infantile Atrophy.—Der gegenwärtige Stand der Frage nach dem Wesen der Säuglingsatrophie. G. Tugendreich.
70 *Ueber eine neue Milchsäureprobe (test for lactic acid). W. Croner and W. Cronheim.
71 *Ueber den Wert der hohen Darmeingeissungen (value of high injections into the bowels). L. v. Aldor.
72 Present Status of Spinal Anesthesia.—Die Lumbalanästhesie. Hildebrandt.

64. **Lumbar Anesthesia with Stovaine.**—Tilman reports extremely satisfactory experiences with spinal anesthesia since the introduction of stovaine. Bier supplements its action with adrenalin, but Tilmann has not found it necessary in his 42 cases. He gives his patients a glass of wine and something to eat immediately after the operation. Few mishaps are credited to stovaine as yet. One reported by Sonnenberg was in the case of a pyemic woman with suppuration in the abdomen who succumbed to suppurative meningitis ten days after a lumbar injection. Chaput has reported a death after lumbar injection of .01 gm. stovaine by a non-surgeon, and he has also witnessed a case of transient collapse. Tilmann has broadened the scope of lumbar anesthesia by utilizing it for the relief of sciatica. His first patient of this kind was a young man of 22, a sufferer from rebellious sciatica. He required an operation for hydrocele, and under stovaine lumbar anesthesia the sciatic pains vanished and they did not recur after the return of sensation. Tilmann seized this opportunity to stretch the nerve by forcible flexion of the thigh, a method which he regards as extremely beneficial in sciatica, but which he is rarely able to apply on account of the excessive painfulness of the procedure. After the fourth day slight sensation returned in the sciatic, but subsided again by the eighth day, and the patient has since been permanently cured. He has had somewhat similar experience with four other patients with sciatica, and recommends a tentative stovaine injection in all cases of sciatica rebellious to internal treatment (castor oil, potassium iodid, quinin), and in which the painfulness renders it impossible to stretch the nerve. Even if used only as a palliative, instead of morphin, the injection of stovaine in the lumbar sac will have a more durable action than the morphin, as in his experience the anesthesia of the sciatic lasted always for four days.

65. **Bone Marrow and Hypoleucocytosis.**—Gütig's patient was a girl of 18 and the blood findings indicated complete insufficiency on the part of the bone marrow. The autopsy revealed pseudoleukemic proliferation of lymphadenoid tissue in the bone marrow and also miliary tuberculosis, both known to

have an injurious action on the marrow, and thus superposing their effects in the present case.

67. **Bacteriologic Examination of Cases of Tuberculosis Without Sputa.**—Blume has found it impossible in a number of cases of incipient tuberculosis to obtain enough sputum for examination. He gives such patients an ordinary object-glass, mounted in a frame like a hand mirror, and instructs them to hold the glass opposite their mouth as they cough every morning, for from eight to ten days, and then to send the glass to him, packed loosely in paper. Microscopic examination then follows after the usual double staining.

70. **Improved Test for Lactic Acid.**—Croner and Cronheim recommend as sensitive and reliable the following modified test: Two grains of potassium iodid are dissolved in 5 c.c. of water or less, and 1 gm. of sublimated, pulverized iodin is added. After all is dissolved, it is filtered through asbestos or glass wool and diluted to 50 c.c. About 5 c.c. of anilin is then added to the fluid, which is set aside in a dark-colored vial. It will keep for several months. The stomach content to be examined is diluted with water, rendered alkaline with 10 per cent. caustic potash, boiled for a few minutes, and then a few c.c. of the reagent are mixed with it. In the presence of lactic acid the odor of isonitril becomes perceptible at once or after renewed boiling, supplanting the odor of the anilin. The test was positive in one experience, even in the presence of only .0025 gm. of lactic acid to 100 c.c. of the diluted solution. Alcohol and acetone give the same reaction, but can readily be removed.

71. **High Injections into the Intestines.**—Years of experience have confirmed von Aldor's previous announcements in regard to the great benefit to be derived from injections carried high into the bowels. He uses a soft Nélaton sound, like a stomach tube, and guards against its rolling up at the sigmoid flexure by digital examination. The patient lies on the left side. Experiments with tubes coated with bismuth in a mixture of oil, glycerin and gum arabic showed that the tubes actually made their way into the higher parts of the gut, as could be seen by the *x*-rays. He gives two illustrations, one showing the wrong way to introduce the tube and its rolling up in the ampulla, the other showing the right way and the course of the tube as it reached the higher regions. The walls of the intestines can be treated just where desired through the tube, and medicated fluids introduced. When the fluid is injected without a tube, most of it accumulates in the lower bowel and very little, if any, finds its way to the higher regions. High injections of Carlsbad water have proved exceedingly useful in certain cases.

Deutsches Archiv f. klinische Medizin, Leipsic.

Last indexed pages 79 and 103.

73 (LXXXIII, Nos. 3-4.) Eine kombinierte Form der heredofamillären Nervenkrankheiten (spino-cerebellare Heredoataxie mit Dystrophia musculorum). One case; autopsy and bibliography. H. Bing.
74 Zur Bakteriologie der Bronchitis. J. Karcher.
75 Research on Sahli's Test Meal.—Untersuchungen mit Sahli's Probemahlzeit. H. P. T. Oerum.
76 Influence of Upright Position on Urine Excretion in Heart Disease.—Ueber den Einfluss des Aufstehens auf die Urinausscheidung Herzkranker. C. Knecht.
77 Shape of Heart Muscle Nuclei.—Experimentelle Untersuchungen über die form der Herzmuskelkerne und Bemerkungen über das Verhalten der Aorta bei experimentell erzeugter Insuffizienz der Aortaklappen. R. Inada.
78 *Chemische und histologische Untersuchungen an bestrahlten Leukämikern (after Roentgen treatment). J. Lossen and P. Morawitz.
79 Fate of Albumin-dissolving Digestive Ferment.—Ueber das Schicksal der der eiweisslösenden Verdauungsfermente im Darmkanal. J. Grober.
80 Die Fälle von Hospital-erysipel im Warschauer Militarhospital (1893-1902). J. V. Maximowitsch.
81 *Ueber Urine und Urinsedimente bei febrilen Erkrankungen, bei Icterus and Diabetes. C. Klieneberger and R. Oxenius.
82 *Importance of Blood Pressure Measurements.—Die Bedeutung der Blutdruckmessung für die Praxis. F. Geisböck.

78. **Chemical and Histologic Findings in Leukemia After Roentgen Treatment.**—The patient was a man of 36, previously healthy, with myeloid leukemia for two or three years before it terminated fatally. Forty Roentgen exposures were made, but did not seem to arrest the progress of the disease after a first, transient improvement. The composition of the blood and the blood findings changed under the exposures, finally presenting the picture accompanying aplasia of the blood-forming organs, and the anatomic findings were those of hypoplasia. It was most pronounced in the bone marrow, but was also unmistakable in the spleen and lymph glands. It was accompanied by pronounced proliferation of the interstitial tissue. Lossen and Morawitz are inclined to regard the hypoplasia as favored and possibly originated by the three weeks of rather intense Roentgen treatment given in this case. Of 7 leukemic patients treated by Roentgen exposures, 3 were materially improved and the others are still under treatment, with the exception of the fatal case mentioned above. In one case of myeloid leukemia the leucocyte formula became normal and the elimination of uric acid also returned to normal proportions. This suggests an increased new formation of leucocytes as probable. In the first case with extreme leucopenia, the amount of uric acid eliminated remained abnormally high throughout.

81. **Urine in Febrile Diseases.**—Klieneberger and Oxenius made 808 examinations of the urine of 79 men and 63 women suffering from a great variety of febrile affections, leukemia, icterus and diabetes. Their conclusions are to the effect that the urine is liable to be modified by toxic influences, apart from the fever or the general condition. They deny the existence of "febrile albuminuria" in the old sense. The changes in the urine in icterus and in diabetes are more pronounced than in most febrile affections. Sometimes there is a sudden copious evacuation of albumin and tube casts, possibly due to some disturbance in the circulation which may correct itself later.

82. **Blood Pressure Measurements.**—Geisböck has been making a systematic study of the blood pressure in a large number of diseases to determine the action of certain drugs and food and the effect of muscular exertion on the patients. He found the pressure at the lower limit of normal range or slightly below in tuberculosis, averaging 70 to 90 mm. Complications did not send the blood pressure up, as under other circumstances, and in 11 patients giving a febrile reaction to .5 mg. tuberculin the blood pressure sank from 15 to 40 mm. and remained low for from two to six days. The pressure was also low in pneumonia and typhoid. Caffein or digitalis were given in nine cases, but they did not raise the pressure, possibly due to the injury of the vasomotor nerves in these diseases. The blood pressure rose regularly when an ice bag was applied to the abdomen. This effect might be utilized in severe cases of pneumonia to raise the blood pressure by driving the accumulated blood out of the splanchnic region. The blood pressure rose to 120 mm. in less than twenty-four hours after the onset of acute nephritis resulting from ingestion of corrosive sublimate in one case, and had risen to 135 mm. by the sixth day. As there was no time in this case for hypertrophy of the heart to develop, it demonstrates that the rise was due directly to the kidney affection. The pressure was also high in a group of cases of acute, brief, postinfluenza nephritis. The highest pressure noted was in cases of contracted kidney (up to 250 mm.) In dubious cases, high arterial pressure speaks in favor of a nephritis. Suppurative, toxic and septic cases generally have a low pressure. In cases of heart affections, he found that a lower blood pressure after muscular exertion, such as climbing stairs, is a reliable sign of some affection of the heart musculature. It may serve to differentiate the organic from the merely functional affections of the heart. Arteriosclerosis may be the result of long-continued exaggerated high blood pressure, or the high pressure may be the result of diffuse sclerosis of the arterioles. Digitalis lowered the blood pressure, especially when the edema and serous effusions were subsiding, and other diuretics and purgatives acted on the effusions, but did not seem to affect the blood pressure. Tapping the ascites had a decidedly favorable action in reducing the blood pressure. Chloral did not reduce the pressure to any extent in the two cases of heart disease he reports. In the course of his research he encountered a number of patients with remarkably high blood pressure, large numbers of red corpuscles and very high proportion of hemoglobin. These patients were all over 40. The women were generally corpulent and well-to-do, and the men had for years been conducting large enterprises with much responsibility and mental strain. Abuse of alcohol and tobacco was common, as also hereditary influences. He calls this condition "polycythemia hyperton-

ica," and remarks that signs of arteriosclerosis could not be detected in a number of them, although a connection seemed to be apparent in others. Slight albuminuria was the rule, with few exceptions. Apoplexy occurred in 8 of his 17 cases. In advanced cases of contracted kidney Geisböck found no increase, but rather a decrease in the numbers of red corpuscles, but in incipient cases of contracted kidney and in certain other forms of kidney affections the proportions may be unduly high. This was found in one instance in which a man of 51 was brought to the clinic after a severe attack of apoplexy with a blood pressure of 250 mm., 5,700,000 red corpuscles, hypertrophy of the heart and throbbing arteries. The autopsy findings were those of pronounced but not far advanced contracted kidney, with moderate arteriosclerosis and cerebral hemorrhage. This case seems to indicate some connection between the "polycythemia hypertonica" and the chronic kidney affection.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

83 (XXXI, No. 35, August 31.) *Die Behandlung der Arteriosklerose. E. Romberg.
84 Duplication of Sound in Femoral Vessels.—Ueber Doppeltonbildung an den Cruralgefässen. W. Schultz.
85 Resistenz des Pepsins gegen niedrige Temperaturen. A. Bickel.
86 *Aetiologie der gleichmässigen Oesophagus-Erweiterung (regular or spindle-shaped enlargement). H. Richartz.
87 *Ueber die prophylaktische Ernährung Laparotomierter mit Bemerkungen über die Punktions-Drainage des Darms (feeding and draining through laparotomy wound). von Stubenrauch.
88 Breast Nursing in Leipsic.—Umfang der natürlichen Säuglingsernährung in Leipzig. M. Hohlfeld.
89 *Ueber Radioaktivität. P. Bergell.
90 *Ueber Stovaine als lokales Anaestheticum. Schiff.
91 Ein neues Taschenbesteck (portable injection and instrument case). M. Neumann (Berlin).
92 Das med. Studium und die ärztliche Praxis in Italien (medical instruction and practice in Italy). Carrara.

83. **Treatment of Arteriosclerosis.**—Romberg reiterates the necessity for gentle, persevering measures in arteriosclerosis, avoiding abrupt changes in medicines or diet. The efficacy of small doses of potassium iodid has been long established, and recent researches show that this drug reduces the viscosity of the blood by acting on the corpuscles, making it more fluid without diluting it. He prescribes it five times a day in doses of .1 or .3 gm., to be kept up for two or three years, with suspension one week in each month and one month after every three. Gastric disturbances should be avoided by refraining from all acids in the food and drinks while it is being taken. He sometimes orders it with sodium bicarbonate, to be given in milk. He warns directly against its use in cases of uremic edema of the lung occurring under the picture of cardial asthma, and also whenever the arteriosclerosis is complicated with any manifestations of exophthalmic goiter. In other cases the benefit may even include retrogression of organic lesions, although it is impossible to expect retrogression of thrombosis in a vessel in the brain or of fibrous degeneration of the heart muscle or contracted kidney. It is of the greatest importance to reduce to the minimum the demands on the arteries. Sufficient sleep is also to be insured, even with drugs at first.

86. **Etiology of Regular Enlargement of Esophagus.**—Richartz describes a case of spindle-shaped, regular enlargement of the esophagus, and discusses its possible origin. He thinks that the trouble may be the result of congenital or acquired weakness of the musculature of the esophagus, or that it may be of neurogenetic origin, a primary, autochthonous spasm of the cardia combining with dilatation from some affection of the vagus to produce the general enlargement.

87. **Feeding and Draining the Intestine Through Laparotomy Wound.**—For five years von Stubenrauch has been supplying nourishment to certain laparotomy patients by injecting a nourishing fluid into the intestine while it is exposed during the laparotomy. He reviews the drawbacks of nutrient enemata and the frequent lack of absorption, and then describes his experience in fifteen cases in which he drew a loop out of the laparotomy wound, choosing one a yard or more from the seat of operation, and while it was outside the abdomen he punctured and evacuated its contents, substituting them with a quart of milk containing the yolks of eggs, salt, sugar and other ingredients. No mishap occurred in any case, and the patients were thus nourished from the start, without taxing the stomach or wasting time on nutrient enema. This injection stimulates peristalsis, which is liable to be more or less inhibited by the operation. He is careful not to stimulate it too much, and for this reason avoids large amounts of sugar, alcohol and salt in the fluid introduced. A very much debilitated patient is prepared by rectal injection of a solution of sugar and salt in small amounts repeated several times during the day, or by subcutaneous saline infusion or subcutaneous injection of olive oil. During the laparotomy, about a quart of the intestine food is introduced, and afterward a pint of saline solution is poured into the abdomen and a quart is injected subcutaneously. Nothing is allowed by the mouth during the first twelve hours, but the mouth is rinsed out occasionally. After twelve hours, tablespoonfuls of cold tea are given and after the second day milk, etc., several times during the day in small amounts. In cases requiring artificial feeding for only a few days, he sutures the loop of the intestine to the abdominal wound so that food can be introduced directly into the intestine as needed, but if the artificial feeding has to be kept up for some time he makes a fistula according to the Witzel, Albert or Maydl technic. This suturing of the intestinal loop to the lips of the wound has proved a life-saving measure in several cases of ileus, allowing gradual evacuation of the gases and fluid intestinal contents, though a metal cannula. He covers the exposed intestine with a disinfecting paste. He describes his technic in detail and cites a number of cases which have established its benefits.

89. **Radioactivity.**—Bergell reports that radioactivated water promotes the action of the pancreatic juice. Bickel has recently announced that radioactivated water is able to stimulate to greater activity fresh gastric juice from the dog, obtained through a Pawlow fistula. Radioactivated mineral water also accelerates the process of digestion more than ordinary water. Bergell has evolved a method of detecting radioactive emanations in mineral water by means of fractioned cooling. He describes his apparatus for the purpose, and suggests that it may be possible to retain the natural emanations in mineral waters by rapid cooling. The emanation he declares to be a gas which condenses at very low temperatures and which can be extracted from solutions of the radium salts.

90. **Stovaine as a Local Anesthetic.**—Schiff has used stovaine in 203 cases with but a single mishap. This was observed in a patient four hours after some teeth had been extracted under stovaine. The nausea, depression and palpitations observed could be ascribed only to the preceding anesthetic. It is possible that the patient may have swallowed some of the solution used about the teeth.

Münchener med. Wochenschrift, Munich.

93 (LII, No. 34, August 22.) *Weitere Spirochaeten-Befunde bei Syphilis. Rille and Vockerodt (Leipsic).
94 Increase of Hemagglutinins in Puerperium.—Vermehrung der Haemagglutinin im Wochenbett. F. Schenk.
95 *Action of Radium on Infectious Germs and on Infected Tissues.—Ueber Radiumwirkung auf Infektionserreger und Gewebsinfektion. R. Werner.
96 *Ueber Muskel-Hypertrophien hyperkinetischen Ursprungs bei toxischen Polyneuritiden. H. Curschmann.
97 *Myom-Operationen am graviden und kreisenden Uterus. W. Thorn.
98 Fall von Osteitis deformans (Paget). P. Daser.
99 *Zur Roentgen-Therapie. P. Wichmann (Hamburg).
100 Zur Behandlung des Schweissfusses in der Armee (sweating feet). Villaret.
101 *Behavior of Corpuscles in Leukemia Under Roentgen Treatment.—Zum Verständnis des Verhaltens der weissen und roten Blutzellen bei der Behandlung der Leukämie mit R. Strahlen, J. Arneth (von Leube's clinic, Würzburg). (Commenced in No. 33.)
102 *Zur Aetiologie und Therapie des Heufiebers (hay fever). R. Mohr. (Concluded.)

93. **Spirochetes in Syphilis.**—Rille has succeeded in finding the *Spirochæta pallida* in the extragenital lesions of syphilis and also in syphilitic lesions eight or nine years after infection. He gives the particulars of 14 cases, urging that others should mention the age of the syphilis and the clinical manifestations in referring to the finding of spirochetes.

95. **Action of Radium on Infectious Agents and on Infected Tissues.**—Werner writes from Czerny's clinic at Heidelberg to report research which has demonstrated that the radium rays not only kill bacteria, but also deprive them of toxic action. The toxicity is abolished without interfering with the property

of the bacteria to induce immunization. He found, further, that cells succumbing to the action of the radium rays are liable to develop bactericidal properties, much more pronounced than the ordinary autolytic processes. Rabbits were injected with cultures that had been killed by exposure to radium rays, and the results showed that the cultures must have been deprived of toxicity, as the animals could bear even two or three times the fatal dose of cultures killed by heat alone. At the same time it was found that the serum of the animals thus treated acquired unusually strong bacteriolytic and antitoxic powers. These results were obtained invariably in experiments with four staphylococcus stems, one streptococcus and one colon bacillus stem. No results were obtained in attempts to disinfect wounds with direct exposure to the radium rays. It was found, however, that necrosis induced by the radium rays was resistant to infection with germs later. The cells evidently became altered in some way under the influence of the radium rays so that they developed bactericidal properties without the co-operation of the leucocytes which were unable to penetrate into the necrotic patches.

96. **Hypertrophy of Muscles in Toxic Polyneuritis.**—Curschmann's first patient was a neuropathic and debilitated multipara with tobacco polyneuritis with paresis from long employment in a cigar factory. For four years there have been from six to eight recurrences during the twenty-four hours of cramps of the dorsal flexors of both feet, lasting from fifteen to thirty minutes. Gradually secondary hyperkinetic hypertrophy of the tibialis anticus developed, slightly involving the peroneus longus, with atrophy of other muscles. The reaction to electricity and other features of the case and of a similar one of alcohol polyneuritis are described. He can find only one case on record (Bressler's) exhibiting the same syndrome.

97. **Removal of Myomata During Pregnancy and Delivery.**—Thorn reports the details of 9 cases to show the extreme tolerance of the gravid uterus for myomectomy. He has observed 2 cases of axial torsion of the pregnant uterus due to the growth of myomata. The new growths were so close to the three months' ovum that abortion seemed almost inevitable when they were removed by a laparotomy, but the pregnancy continued to the eighth month, when a recently dead fetus was spontaneously delivered after a few days of hemorrhage, probably due to the abnormal attachment of the placenta. In the other case the four months pregnancy continued undisturbed to the end, after removal of a large myoma from the anterior wall of the uterus below the left cornu, and two smaller ones near by. The myoma was congested, with necrosis in the center. The symptoms compelling laparotomy in this case had come on suddenly, with violent abdominal pain, vomiting, etc. Central necrosis was also observed in another case presenting the same sudden onset of symptoms. One patient, known to have a myoma in the uterus, exhibited uncontrollable vomiting, requiring abortion, after which the myoma retrogressed one-half in size. His experience shows that it is impossible to foretell whether a myoma will make trouble during a pregnancy or not. One possible source of serious trouble is the giving out of the expelling force of the uterus on account of the presence of the myoma. In 2 of his patients the intestine must have become compressed, giving rise to excessive meteorism. The unfavorable action of very large myomata on the circulation and respiration is liable to entail thrombosis. Expectant treatment of delivery in case of a complicating myoma should not be carried too far. The best plan is to have the woman under constant surveillance in a clinic, even after the head has passed the obstacle. There may be after-hemorrhage or trouble from necrosis of the myoma.

99. **Improved Roentgen Tube.**—Wichmann has his tubes made with a "lead glass" protecting mantle outside. A circular opening allows the focused rays to escape. The lead glass covering is continued to make a low wall around this opening, and a narrow metal tube with flaring top fits on this prolongation of the wall. The Roentgen rays are focused in the circular opening and can escape only through the narrow tube which is placed directly over the spot or introduced into the fistula or cavity to be treated. No rays escape except through the bottom of the tube, and the subject and the physician are both protected against injury through the walls of the Crookes' tube by the lead glass envelope. The small tube is of the proper length so that the Roentgen tube can never be brought too near the part exposed.

101. **Leukemia and Roentgen Treatments.**—Arneth has been making a careful study of the blood findings after exposure to the Roentgen rays, and analyzes all that has been published on the subject in Europe and Senn's article. His final verdict on the testimony thus offered to date is that the Roentgen rays have an undoubtedly favorable action in leukemia, but that it is indirect. They do not cure the lesions, but they destroy the parasites which are causing the lesions. The action of the Roentgen rays in leukemia is like that of quinin in malaria. Both cure the patient by killing off the microorganisms causing the trouble. This assumption entails the necessity for more thorough and more general exposure to the rays. They should be as extensive and as protracted as possible to seek out and destroy the causal germ in its remotest lurking places, not restricting the exposures, as in the past, to the blood-forming organs alone. This conception supplies, for the first time, an etiologic treatment for leukemia and one that is proving more successful than any in the past.

102. **Hay Fever.**—R. Mohr of Mügeln here summarizes the experiences of the "Association of Hay Fever Sufferers" who make their headquarters on the island of Helgoland during the hay fever season. He insists on the necessity for careful guarding against recurrence of the affection, expressing wonder that hay fever patients show so little common sense in this respect. Intoxication from pollen should be prevented. The hay fever sufferer should not take long walks or at least not without some protecting device, if no more than breathing through a handkerchief. Railroad trips should be avoided, and all exercise inducing sweating. The windows on the side toward the wind should be kept closed, especially at night, and all drafts should be avoided. The outer garments should not be kept in the living rooms, and no cut flowers should be allowed in them. The bedding and washing should not be aired or dried out of doors. Mohr has invented a little device which is worn in the nostrils and keeps out all pollen dust. Forty persons have been wearing this device during the last season, and those who have followed directions have been protected against hay fever. He is now perfecting a device for those who can not tolerate the sensation of a foreign body in the nose. The Dunbar hay fever specific remedies were used by members of the association with favorable results from the fluid pollantin in 87 cases, no results in 77, while 22 attributed the aggravation of their trouble to it. Operative measures did not seem to benefit but a very small proportion of the 138 persons thus treated, but the suprarenal extracts, applied locally by a physician, afforded relief in many instances. Mohr adds that the nose should always be rinsed out from the rear alone. Flight to a place where the pollen production has not yet begun or is past or is always scanty is still the best means to avoid hay fever in those predisposed to it.

Books Received

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., assisted by H. R. M. Landis, M.D. September 1, 1905. Volume VII. No. 27. Paper Pp. 298. Price, $6.00, Philadelphia: Lea Brothers & Co., 1905.

ANNUAL REPORT OF THE MILWAUKEE COUNTY HOSPITAL for the Year Ending Dec. 31, 1904, with the Medical and Surgical Statistics, the Rules and Regulations for the Government of the Hospital, etc. E. C. Grosskopf, M.D., Superintendent. Paper. Pp. 113. Milwaukee: Breithaupt Printing Co. 1905.

THE APSLEY COOKERY BOOK, Containing 448 Recipes for the Uric-Acid-Free Diet. By Mrs. John J. Webster and Mrs. F. W. Jessop. Cloth. Pp. 235. Price, $1.25. Philadelphia: P. Blakiston's Son & Co. 1905.

CARBONIC ACID IN MEDICINE. By A. Rose, M.D., with portraits of Helmont, Priestley and Lavoisier. Cloth. Pp. 259. Price $1 net. New York: Funk & Wagnalls Co.. 1905.

TYPHOID FEVER EPIDEMIC, at Palo Alto, Cal. A Report Made to the Palo Alto Board of Health, by J. C. L. Fish. President of the Board. Paper. Pp. 62. The Board of Health: Palo Alto, Cal. 1905.

MEDICAL DISEASES OF EGYPT. By F. M. Sandwith, M.D., F.R.C.P. Part I. Cloth. Pp. 316. London: Henry Kimpton, 1905.